Hotwire® ATM Line Cards

Models 8335, 8355, 8365, and 8385

User's Guide

Document No. 8335-A2-GB20-70

February 2003

PARADYNE®

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Refer to the appropriate Digital Subscriber Line Access Multiplexer (DSLAM) installation guide for all regulatory notices and safety information.

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About This Guide

Document Purpose and Intended Audience

This guide contains information needed to set up, configure, and operate the Hotwire ATM Line Cards, Models 8335, 8355, 8365, and 8385, and is intended for installers and operators.

New Features for This Document Release

This version of the *Hotwire ATM Line Cards, Models 8335, 8355, 8365, and 8385, User's Guide* removes an appendix containing information about the Hotwire 6390 ReachDSL Modem. This information is now in the *Hotwire ReachDSL Modem, Model 6390 with Inline Phone Filter, Installation and Operation Supplement*, Document Number 6390-A2-GK40.

Document Summary

Section	Description
Chapter 1, *About the Hotwire ATM Line Cards*	Describes the card's features and capabilities.
Chapter 2, *Menus and Screens*	Provides instructions for accessing the user interface and navigating the screens.
Chapter 3, *Configuration*	Provides instructions for configuring the unit.
Chapter 4, *Monitoring*	Describes how to use the LEDs, status messages, and statistics to monitor the unit.
Chapter 5, *Diagnostics*	Provides instructions for viewing self-test results and alarms, and for running an ATM Ping and line loopback test.
Chapter 6, *Maintenance Procedures*	Provides instructions for clearing NVRAM, uploading or downloading a configuration, downloading firmware, and resetting the card.
Appendix A, *Menus*	Shows the paths to configuration, monitoring, and diagnostics screens.

Section	Description
Appendix B, *SNMP Traps*	Contains SNMP trap compliance information.
Appendix C, *Connector Pin Assignments*	Lists the pin assignments for the GranDSLAM Telco connectors.
Appendix D, *Technical Specifications*	Contains physical and regulatory specifications, and power consumption values.
Index	Lists key terms, acronyms, concepts, and sections in alphabetical order.

A master glossary of terms and acronyms used in Paradyne documents is available on the World Wide Web at **www.paradyne.com**. Select *Support* → *Technical Manuals* → *Technical Glossary.*

Product-Related Documents

Complete documentation for this product is available online at **www.paradyne.com**. Select *Support* → *Technical Manuals*.

Document Number	Document Title
6390-A2-GK40	*Hotwire ReachDSL Modem, Model 6390 with Inline Phone Filter, Installation and Operation Supplement*
6390-A2-GN10	*Hotwire ReachDSL Modem, Model 6390 with Inline Phone Filter, Installation Instructions*
8000-A2-GB22	*Hotwire Management Communications Controller (MCC) Card, IP Conservative, User's Guide*
8021-A2-GB20	*Hotwire Shelf Concentration Module (SCM) Card User's Guide*
8335-A2-GZ40	*Hotwire ATM Line Cards, Models 8335, 8355, 8365, and 8385, Installation Instructions*
8620-A2-GN20	*Hotwire 8620 GranDSLAM Installation Guide*
8820-A2-GN20	*Hotwire 8820 GranDSLAM Installation Guide*
9700-A2-GB20	*FrameSaver DSL 9783 and 9788 User's Guide*

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About the Hotwire ATM Line Cards

1

Hotwire ATM Line Cards

The Hotwire® 8335, 8355, 8365, and 8385 Asynchronous Transfer Mode (ATM) Line Cards are circuit boards mounted in a Hotwire 8620 or 8820 GranDSLAM (Digital Subscriber Line Access Multiplexer) and used to transport ATM cells at high speeds over a single twisted-pair connection.

- Model 8335 supports Symmetric Digital Subscriber Line (SDSL). It can be set to AutoBaud to the highest rate the loop can support, or to use a fixed line rate from 144 to 2320 kbps.
- Model 8355 supports ReachDSL. It automatically adjusts to the highest rate the loop can support, from 32 to 2176 kbps.
- Model 8365 supports Asymmetric Digital Subscriber Line (ADSL). It can be set to adapt to the line conditions at startup, or set to the following fixed rates depending on line code:
  - — G.dmt and ANSI T1.413: 32 to 8000 kbps downstream and 32 to 832 kbps upstream.
  - — G.lite: 64 to 3008 kbps downstream and 32 to 512 kbps upstream.
- Model 8385 supports Single-pair High-speed Digital Subscriber Line (SHDSL). It can be set to adapt to the line conditions at startup, or set to a fixed line rate from 200 to 2312 kbps.

Part of Paradyne's Hotwire Connected™ program, the cards interoperate with third-party DSL endpoints providing end users with the ability to select the best equipment to fit their application. The new line cards also integrate support for multiple DSL services on a single card.

Hotwire ATM Line Card Features

The Hotwire ATM Line Cards have these standard features:

- **Asynchronous Terminal Interface (ATI).** Provides a menu-driven VT100-compatible terminal interface for configuring and managing the unit locally or remotely by Telnet session.
- **Alarm indication.** Activates front panel LEDs.
- **Diagnostics.** Provides OAM F5 loopback (ATM Ping), self-test, and line loopback.
- **Device and test monitoring.** Provides the capability of tracking and evaluating the unit's operation, including health and status, and error-rate monitoring.
- **Software upgrade.** Supports software upgrades using TFTP.

DSL Features

The cards' DSL features include:

- **High speeds and multiple line codes:**
  - — Model 8335 supports data rates up to 2320 kbps upstream and downstream using 2B1Q line code.
  - — Model 8355 supports data rates up to 2176 kbps upstream or downstream using ReachDSL line code.
  - — Model 8365 supports data rates up to 3008 kbps downstream and 512 kbps upstream using G.lite line code. It can also support data rates up to 8000 kbps downstream and 832 kbps upstream using G.dmt or ANSI line code.
  - — Model 8385 supports data rates up to 2312 kbps upstream and downstream using Trellis-Coded Pulse Amplitude Modulation (TC PAM) line code.
- **High density:**
  - — Model 8335 provides 16 subscriber line ports on each card.
  - — Model 8365 provides 12 subscriber line ports on each card.
  - — Models 8355 and 8385 provide 24 subscriber line ports on each card.

ATM Features

The cards' ATM features include:

- **Classes of service.** Supports traffic management service categories necessary to support voice and data applications:
  - CBR
  - rt-VBR
  - nrt-VBR
  - UBR (only class of service supported for the Model 8355)
- **Auto configuration.** Two Virtual Channel Connections (VCCs) per port are automatically configured, providing data and voice services.
- **Multiple virtual circuits.** Up to 250 additional VCCs can be configured by the user and assigned among the DSL ports.
- **ATM statistics.** Maintains statistics for:
  - Total cells received
  - Total cells transmitted
  - Total cells dropped
  - Loss of cell delineation events
  - Cells with corrected Header Error Control (HEC; Model 8335 only)
  - Cells with uncorrectable HEC

Endpoint Support Features

The cards' endpoint support features include:

- **Third-party endpoint support.** The Models 8335, 8365, and 8385 line cards support third-party endpoints through the Hotwire Connected program, including Integrated Access Devices (IADs) and data-only endpoints from numerous industry-leading vendors. The Model 8385 card supports third-party endpoints using the ITU SHDSL standard. A list of Paradyne's SHDSL partners is available on the World Wide Web at **www.paradyne.com**. Select *Partners* → *Hotwire Connected Interoperability Program.*
- **Model 6390 Modem support.** The Model 8355 line card supports the Hotwire Model 6390 Modem.
- **Automatic rate adaptation.** The card and the endpoint negotiate the best rate, limited if desired by the user, through automatic rate adaptation. For 2B1Q (Model 8335) the Conexant AutoBaud algorithm is used.

Network Configurations

Figure 1-1 shows the Hotwire ATM Line Card used to carry voice over DSL.

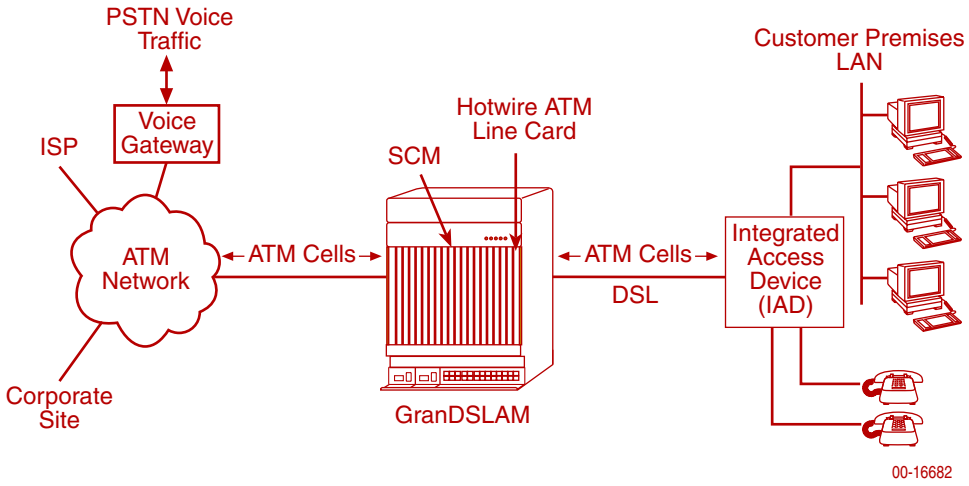


Figure 1-1. Endpoint with Voice Interfaces

Figure 1-2 shows a configuration in which the endpoints include a router to provide data encapsulation.

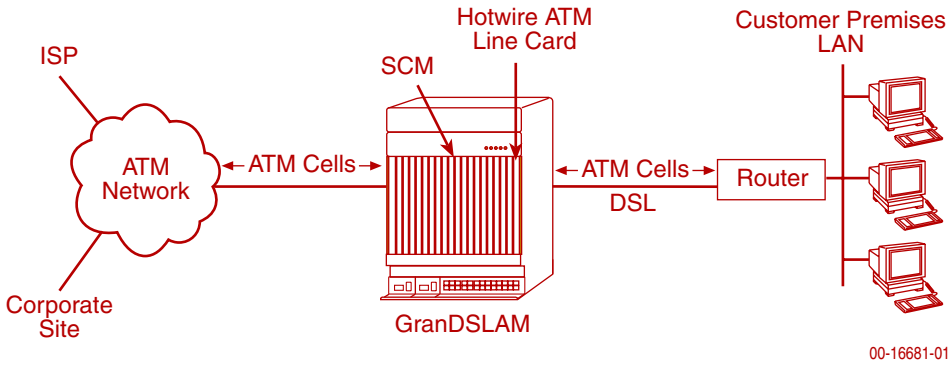


Figure 1-2. Router Endpoint

SNMP Management Capabilities

The Hotwire ATM Line Cards support SNMP Version 1, and can be managed by Paradyne's OpenLane® or any industry-standard SNMP manager.

Management Information Base (MIB) Support

For a detailed description of supported MIBs, visit Paradyne's Web site at **www.paradyne.com**. The following MIBs are supported:

- ATM Forum SNMP M4 Network Element View (af-nm-0095.001)
- Definitions of Managed Objects for the ADSL Lines (RFC 2662)
- Definitions of Managed Objects for ATM Management (RFC 2515)
- Definitions of Managed Objects for HDSL2 and SHDSL Lines (draft-ietf-adslmib-hdsl2-10.txt)
- Definitions of Textual Conventions and OBJECT-IDENTITIES for ATM Management (RFC 2514)
- Evolution of MIB II Interfaces (RFC 2863)
- ADSL Extension MIB (Model 8365 only) (draft-ietf-adslmib-adslext.txt)
- SHDSL MIB (Model 8385 only) (draft-ietf-adslmib-hdsl2.txt)
- Entity MIB Using SMIv2 (RFC 2037)
- MIB II and the Interfaces Group MIB (RFC 1213, RFC 2233)
- Paradyne enterprise MIBs for:
  - Hotwire xDSL Interface
  - SLE Device Control
  - SLE Device Health and Status
  - MaxVciVpi-MIB Table
  - IF-MIB Table
  - ATM VPL Statistics Table

SNMP Trap Support

The Hotwire ATM Line Cards support SNMP traps as shown in Appendix B, *SNMP Traps*.

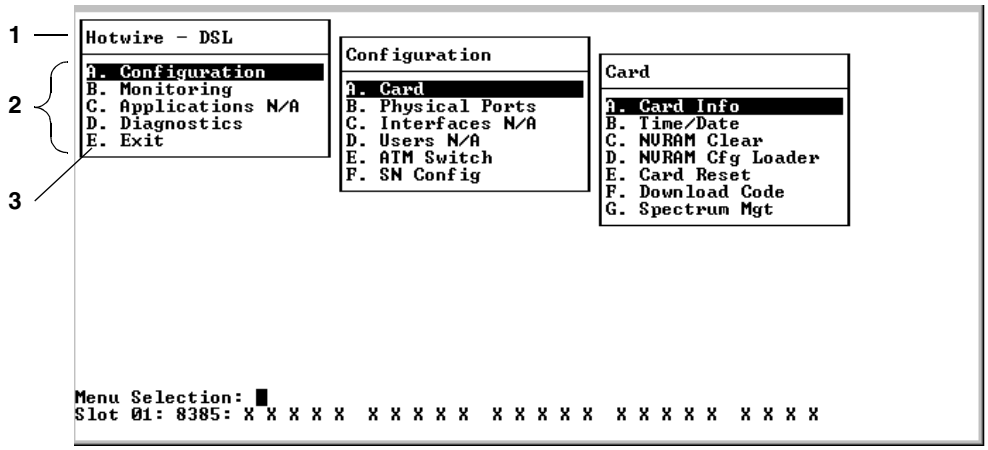
Menus and Screens

2

Menu and Screen Formats

The Hotwire DSLAM has an ASCII-based menu- and screen-driven user interface system that enables the user to configure and monitor the Hotwire cards. This section describes the components of a typical Hotwire menu and screen.

A typical Hotwire menu format is shown below:



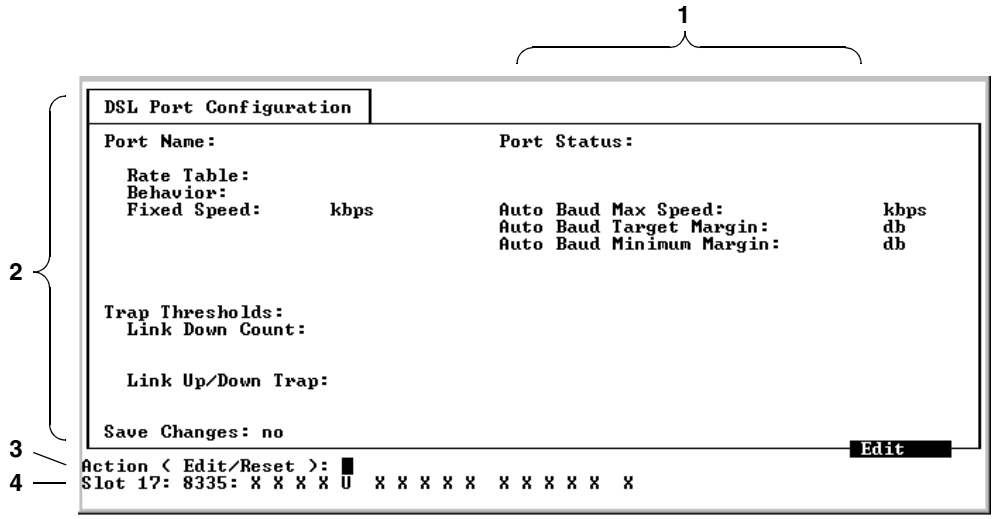
1. **Menu Title** is the top line of the menu window that displays the title of the menu or submenu.
2. **Menu List** is the portion of the menu window that displays the list of menu options. When selected (by using the up and down arrow keys to move the cursor position), a menu option displays a submenu window.
3. **Letter Navigation Keys** are provided within a menu list. These keys provide an alternative method for selecting menu items.

   For example, from the Hotwire – DSL menu illustrated above, you can press the **A** key to select the Configuration menu item. The Configuration menu appears. You can then press the **A** key to select the Card Status menu item, and subsequently the Card Info menu item.

   Some menu items not active for this product are displayed as placeholders in the menu lists so that letter navigation keys are the same for all related products.

Components of a Hotwire Screen

A typical Hotwire screen looks like this:



1. **System Header Line** is the top right line of the screen. This line contains two fields of system login information:

   — The first field displays a user-defined chassis or individual card name. If you have not defined the system name, **<no name>** appears.

   — The second field displays the previous remote or local login depending on what is currently displayed in the middle field (such as the current login). If the current login is local, the last field displays the previous remote login. If the current login is remote, the last field displays the previous local login.

2. **Display Area** is the main body of the screen. This area contains the screen name in a “tab” at the upper left, and fields displaying data and/or requiring input. The input values themselves are entered in the Input Line at the bottom of the screen.

3. **Input Line** is in the lower area of the screen. This area displays prompts after which you enter values for the field highlighted in the Display Area.

   If a field has predefined permitted values, you need only type enough of a value to distinguish it from other permitted values. For example, if the Behavior field has a value of Fixed or AutoBaud, you need only type **f** or **a**, respectively, and press Enter, to select a value.

4. **Status Line** is the last line of the screen. It displays status about the selected card and all interfaces. Each time the screen is refreshed, one of the following lines is displayed in rotation:

   Line 1: **`Slot 02: 8335: Card Status: _ _ _ Wan Status: U`**
   Line 2: **`Slot 02: 8335: D D D D D  D D D D D  D D D D D  D`**
   Line 3: **`Slot 02: 8335: Press ? For Help`**

Line 1 Text	Description
Slot *Slot number of the card*	Slot number of the card
8335, 8355, 8365, or 8385	Model number of selected card
Card Status:	
_ or T	Test mode. Card currently in test mode (T) or _ for no active test.
_ or M	Major alarm. Major alarm present on card (M) or _ for no active mralar byuyu2.7(r).0034 Tc-0.0014 Tw[(2ct)14.8(412.4(mbeMi)(n)-11r)-.7(
_ or R	

Naming Conventions for Ports and Interfaces

Special naming conventions exist for the Port Name and Interface Name fields.

- **Port Name** – Identifies a physical port. It consists of a family name (dsl for a DSL card), and a port number. The port number can range from 1 to the number of ports on the card. For example: dsl12.
- **Interface Name** – Identifies a logical connection. It consists of a family name and a port number (same as the port name), followed by a number identifying a logical interface on the port. Currently the interface number is limited to 1. For example: dsl12:1.

General Navigation Keys

Table 2-1. General Navigation Keys

Keys	Definition
Backspace, Del, Ctrl-d	Erases the character to the left of the prompt.
Ctrl-e	Returns to the card selection screen from any screen.
Ctrl-r	Resets counters (on monitoring statistics displays).
Ctrl-u	Clears the current input or prompt line.
Ctrl-v	Displays pop-up menus.
Esc h, ?	Displays the online Help screen.
Esc l, Ctrl-l	Refreshes the screen.
Esc n	Goes to the next window.
Esc p, Ctrl-z	Goes back to the previous window.
Esc t, Ctrl-a, Ctrl-c, Ctrl-t, or Ctrl-y	Goes back to the original, top-level window.
Left arrow, Ctrl-b	Moves the cursor to the left.
Right arrow, Ctrl-f	Moves the cursor to the right.
Up arrow, Ctrl-p	Moves up to the previous menu selection or entry field.
Down arrow, Ctrl-n	Moves down or to the next selection.
Enter	Accepts entry.

Pop-Up Menu Navigation Keys

Table 2-2. Pop-Up Menu Navigation Keys

Keys	Definition
Ctrl-w	Scrolls up one page.
Ctrl-x	Scrolls down one page.
Up Arrow, Ctrl-p	Moves cursor up one menu item.
Down Arrow, Ctrl-n	Moves cursor down one menu item.
Ctrl-z	Exits pop-up menu without accepting selected entry.
Enter	Accepts selected entry and exits pop-up menu.

User Login Screen (MCP)

You can log in to the Hotwire DSL system using either a local VT100-compatible terminal or a remote Telnet connection. However, the Hotwire DSL system accepts only one login session at a time.

The User Login screen appears if one or more users have been defined on the Management Communications Processor (MCP).

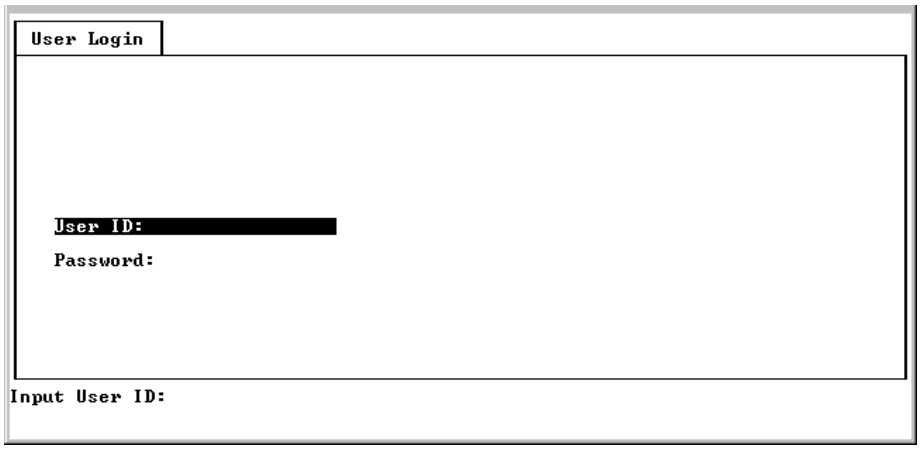
Enter your login ID and password. The login ID and password are case-sensitive.

If you have RADIUS Authentication, this verification may take several minutes as each RADIUS server is contacted one at a time.

If you are denied access during a Telnet session, the session stops and an error is logged. If you are using a console, you are automatically returned to the User Login screen.

NOTE:

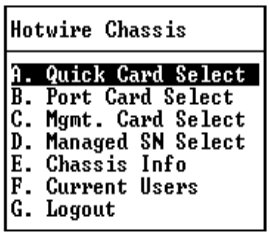
If you forget your password, contact your Technical Service Center. Have the serial number of the MCP card available, and the service representative will provide you with a password.



After entering your login ID and password, the system displays the Hotwire Chassis Main Menu.

Quick Card Select Screen

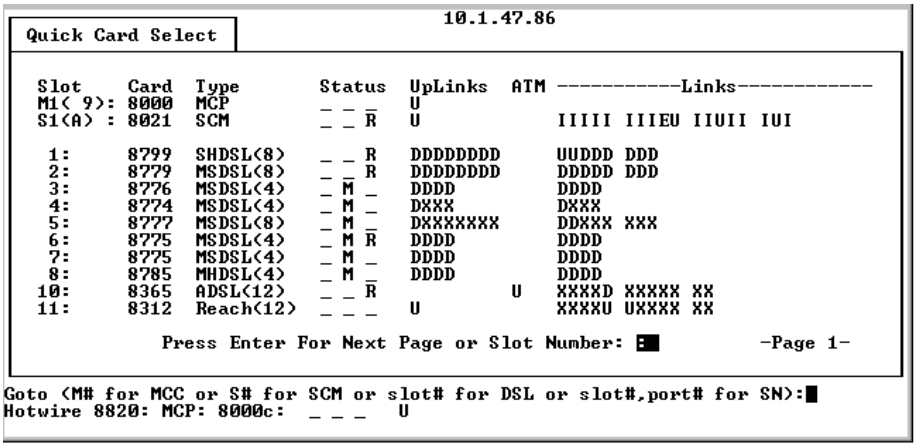
The Quick Card Select screen displays all the cards in the chassis and lets you Telnet to a selected card in the chassis. Information is displayed only for populated slots. See the *Hotwire Management Communications Controller (MCC) Card, IP Conservative, User's Guide* for more information about the Hotwire Chassis Main Menu.



▶ Procedure

To select a card:

1. From the Hotwire Chassis Main Menu, select **A** for Quick Card Select.



2. At the **Goto:** prompt, type the slot number of the desired card and press Enter.

   The appropriate menu appears.

The following information is displayed on the Quick Card Select screen.

Table 2-3. Quick Card Select Screen

Column Heading	Display	Description
Slot	<slot number>	Slot number of card in chassis.
Card	<model number>	Model number of card.
Type	<card type(ports)>	Card type followed, if appropriate, by the number of ports it supports. For example, **SCM**, **SDSL(16)**, **Reach(24)**, **ADSL(12)**, or **SHDSL(24)**.
Status	Position 1: T or _	Test mode. Card currently in test mode or _ for no active test.
	Position 2: M or _	Major alarm. Major alarm present on card or _ for no active major alarm.
	Position 3: R or _	Minor alarm. Minor alarm present on card or _ for no minor alarm active.
UpLinks	<uplink status>	Status of uplink: U=Up, D=Down, X=Disabled, A=Alarm
ATM	<ATM uplink status>	Status of ATM uplink: U=Up, D=Down, X=Disabled, A=Alarm
Links	<dsllink status>	Status of DSL ports: U=Up, D=Down, X=Disabled, A=Alarm, E=Empty slot

Exiting from the System

You can manually log out of the system or, after a set number of minutes of inactivity, the system will automatically log you out.

Manually Logging Out

▶ Procedure

To exit from the Hotwire DSL system:

1. Return to the Card Selection screen by selecting Exit from either the Hotwire – MCC menu or the Hotwire – DSL menu.
2. Press Ctrl-z.
3. From the Hotwire Chassis Main Menu, select Logout.

   The system exits from the current login session on the Hotwire DSL system.

Automatically Logging Out

The DSL system has an automatic timeout feature that logs you out of the system after five minutes (on the MCP) or ten minutes (on the line card) of inactivity. You will need to log back in to continue your work.

To log back in, press Enter to display the User Login screen and log in.

Configuration

3

Overview

This chapter provides instructions on how to access the system for the first time and perform initial setup procedures. These procedures may include:

In cases where there is a substantive difference between the screens for the different card models, an example for each card model is shown. For most screens the only difference is the model number and number of ports displayed in the message area.

Saving and Restoring Configuration Options

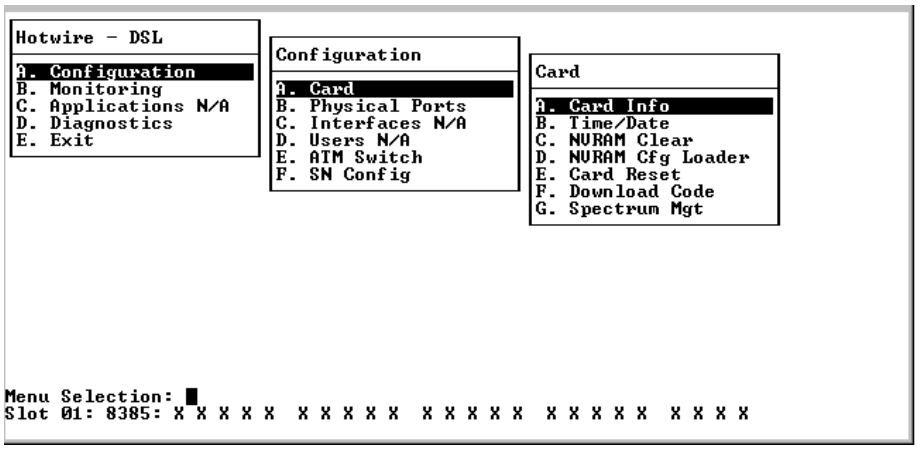
If you have a saved configuration options file you would like to download to the card, or if you would like to save a copy of the current configuration file, use the NVRAM Configuration Loader screen. See *Uploading and Downloading a Configuration* in Chapter 6, *Maintenance Procedures*.

If you have altered configuration options in error and would like to ensure that you are using factory default configuration options, use the Clear NVRAM screen to restore them. See *Clearing NVRAM* in Chapter 6, *Maintenance Procedures.*

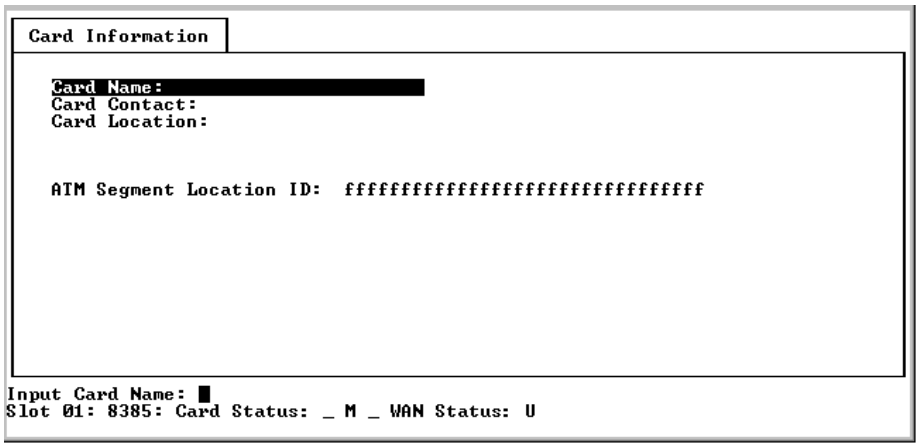
Entering Card Information

After accessing your line card for the first time, use the Card Information screen to configure basic information about the card. To access the Card Information screen, follow this menu selection sequence:

Configuration→*Card*→*Card Info* (**A-A-A**)



The Card Information screen appears.



▶ Procedure

To enter Card Information screen information:

1. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
Card Name	Up to 16 alphanumeric characters to identify the card (Default = blank).
Card Contact	Up to 32 alphanumeric characters to identify the person or organization responsible for the card (Default = blank).
Card Location	Up to 16 alphanumeric characters to identify the location of the card (Default = blank).
ATM Segment Location ID	Up to 32 alphanumeric characters to identify the card for F5 OAM segment loopbacks. If the card receives an OAM loopback cell with a segment loopback destination ID matching the value entered in this field, the card will loop the cell back to the originator (Default = all ones). Refer to ITU-T I.610 for required structure.

2. Save the changes as prompted.

Entering the Time and Date

The Time/Date screen of the Configuration branch of the line card (menu sequence **A-A-B**) displays time, time zone, and date. The values are configured through the MCP and cannot be modified through the line card. For more information about the Time/Date screens, see *Viewing Card Status and Information* in Chapter 4, *Monitoring*. Refer to the *Hotwire Management Communications Controller (MCC) Card, IP Conservative, User's Guide* for complete information.

Setting Spectrum Management (Models 8355 and 8385)

The Spectrum Management screen of the Configuration branch of the Model 8355 and Model 8385 line card (menu sequence **A-A-G**) sets the unique regional operational parameters to use for this card. For the Model 8385, the selections differ depending on whether you are using the card in Notrh American (Annex A) or European (Annex B) networks.

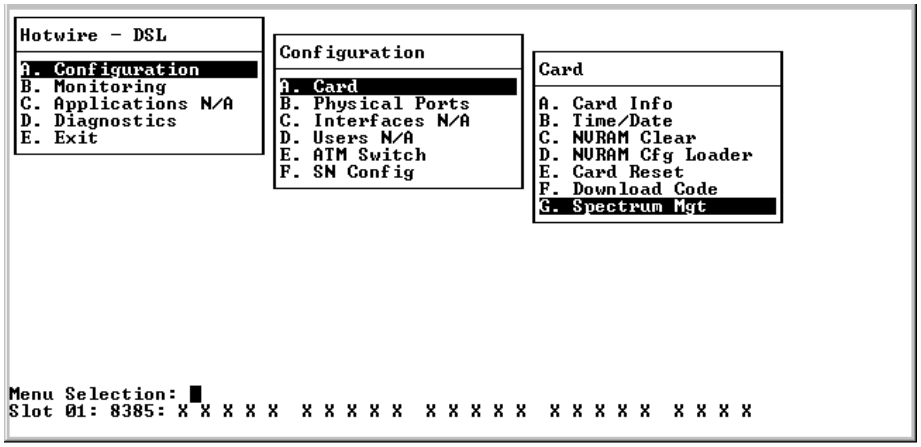
The purpose of Spectrum Management is to facilitate a reasonable spectral environment for the coexistence of multiple technologies in the loop plant with an acceptable level of crosstalk between them. In some countries, the DSL service provider must meet the spectrum management specification of that country. For example, in the United Kingdom, it is a requirement that the product comply with OFTel PSD mask for the loop length requested (short, medium or long). Support for this requirement is provided by enabling the Spectrum Management option on the Spectrum Management screen (**A-A-G**), and properly setting the Line Length and EWL options on the Port Configuration screen (**A-B-B**).

NOTE:

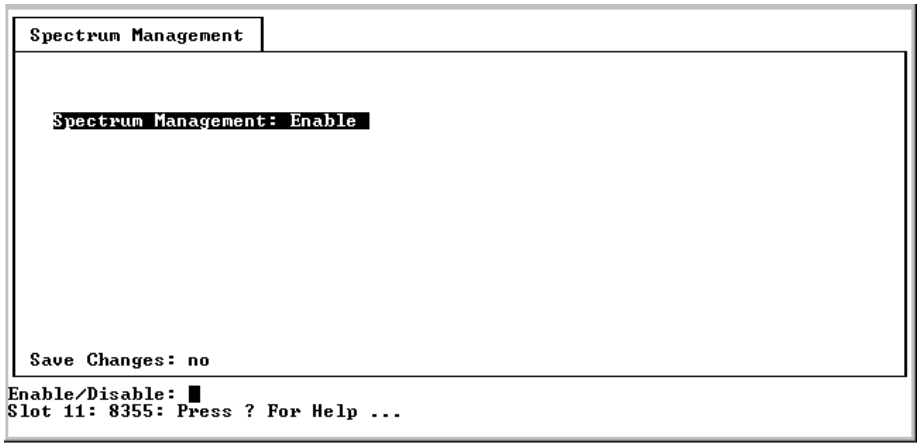
Settings on the Spectrum Management screen affect the choices available for the DSL Port Configuration screen (menu sequence **A-B-B**). See *DSL Port Configuration – Model 8355* on page 3-11 and *DSL Port Configuration – Model 8385* on page 3-19 for more information.

To access the Spectrum Management screen, follow this menu selection sequence:

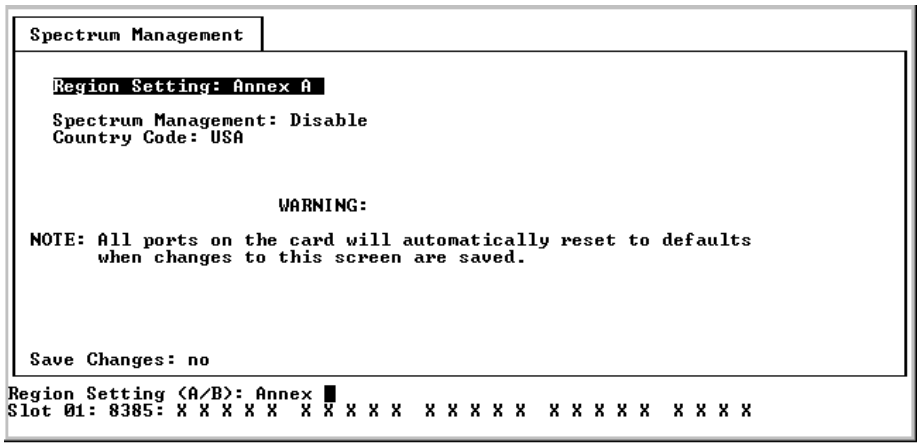
Configuration→*Card*→*Spectrum Mgt* (**A-A-G**)



For the Model 8355, the following Spectrum Management screen appears.



For the Model 8385, the following Spectrum Management screen appears.



▶ Procedure

To enter Spectrum Management screen information:

1. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
Region Setting (Model 8385 only)	The unique regional SHDSL operational parameters as defined in ITU G.991.2 that are to be used for this card (Default = Annex A). **Annex A** – The operational parameters for North America will be used. **Annex B** – The operational parameters for Europe will be used.
Spectrum Management	Enable/Disable to limit the DSL speeds on each port (based on line length) to meet either ANSI T1.417 or BT Access Network Spectrum standard requirements. The selection allows for an acceptable level of crosstalk from multiple technologies in the loop plant as defined by these standards (Default = Enable for Model 8385. Default = Disable for Model 8355 cards.). **Enable** – Enables Spectrum Management support. **Disable** – Disables Spectrum Management support.

For . . .	Enter . . .
Country Code (Model 8385 only)	The Spectrum Management standard to be used on this Model 8385 card to calculate the speeds allowable to comply with Spectrum Management (Default = USA). **USA** – The T1.417 Spectrum Management standard for USA will be used. This setting is only available when Region Setting is set to Annex A. **UK** – The ANFP Spectrum Management standard for BT Access Network will be used. This setting is only available when Region Setting is set to Annex B.

2. Save the changes as prompted.

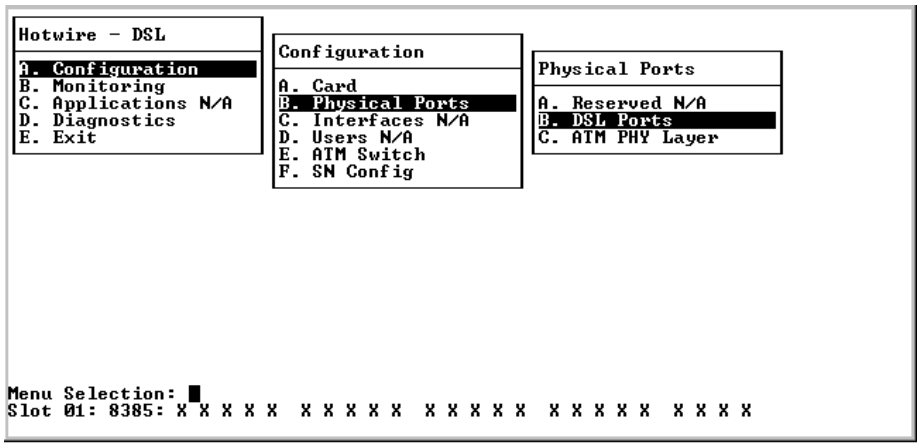
Other Functions of the Card Menu

See Chapter 6, *Maintenance Procedures*, for information about the other functions of the *Configuration*→*Card* menu, such as NVRAM Clear and Card Reset.

Configuring the DSL Ports

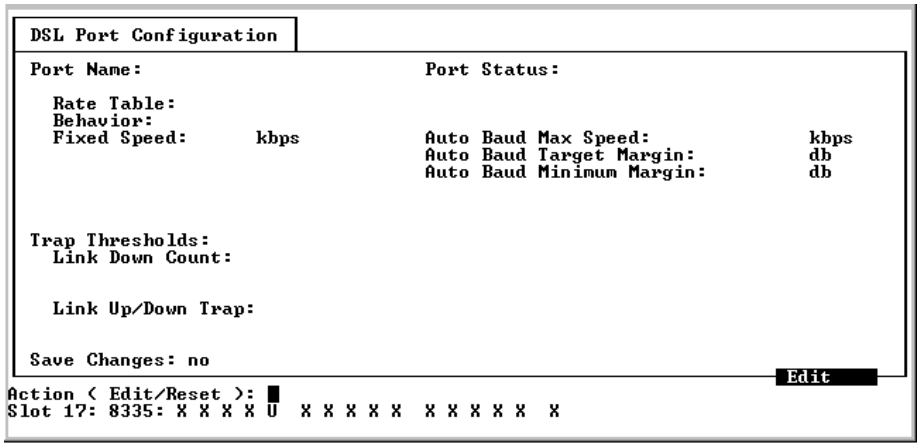
Set the rate and other characteristics of the DSL ports from the DSL Port Configuration screen. To access the DSL Port Configuration screen, follow this menu selection sequence:

Configuration→*Physical Ports*→*DSL Ports* (**A-B-B**)



DSL Port Configuration – Model 8335

For the Model 8335, the following DSL Port Configuration screen appears.



▶ Procedure

To enter DSL Port Configuration screen information for the Model 8335:

1. Select an Action:

   Edit – To edit fields on the screen.

   Reset – To enable the port and cause the DSL line to retrain.

2. Select the Port Name of the port to be configured or reset (**dsl1** through **dsl16**).

3. For Edit mode, position the cursor in the field you wish to modify. Type the value you want and press Enter.

   NOTE:

   Fixed rate and autobaud are the two methods used for synchronizing the DSL line between the central office equipment and the customer premises equipment.

   — Fixed rate is used for applications that cannot tolerate having the speed of the DSL link change (for example, a TDM application). Fixed rate is the fastest method, and it always trains at the same speed. However, depending on line conditions, training may not occur without errors.

   — Autobaud is used for applications that can tolerate having the speed of the DSL link change (for example, IP traffic). The autobaud algorithm sets the DSL link to the highest error-free speed. Autobaud may try several speeds to find the best rate for the line conditions. As a result, autobaud usually takes longer to train than fixed rate. The training time for autobaud will vary with the line conditions, with some line conditions causing the algorithm to take several minutes.

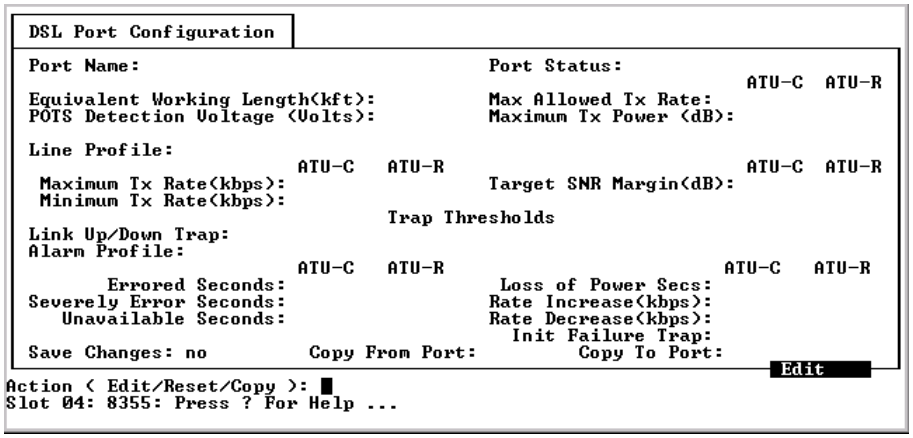
   Regardless of which training mode is used, both DSL units must be set to the same mode.

For . . .	Enter . . .
Rate Table	**Standard** – Selects the standard rate table for use when operating with standard endpoints. **Nx128** – Selects the Nx128 rate table for use when operating with nonstandard endpoints (most are multiples of 128).
Behavior	The training behavior (Default = Auto Baud): **Fixed** – The line card will train only at the rate set in the Fixed Speed field (Standard default = 784 kbps; Nx128 default = 768 kbps). **Auto Baud** – The line card will train up to the highest operational rate less than or equal to the rate set in Auto Baud Max Speed.
Fixed Speed	The DSL line rate if Behavior is set to Fixed: Available Standard rates are **144, 272, 400, 528, 784, 1168, 1552,** or **2320 kbps** (Default = 784 kbps). Available Nx128 rates are **144, 256, 384, 512, 768, 1024,** or **1536 kbps** (Default = 784 kbps).
Auto Baud Max Speed	The maximum DSL line rate the card can train to if Behavior is set to Auto Baud: Available Standard rates are **144, 272, 400, 528, 784, 1168, 1552,** or **2320 kbps** (Default = 2320 kbps). Available Nx128 rates are **144, 256, 384, 512, 768, 1024,** or **1536 kbps** (Default = 1536 kbps).
Auto Baud Target Margin	A range of **0** to **15** dB. The upper limit for margin used by the Autobaud algorithm during training. After training, if the margin is greater than the target margin, the card will attempt to retrain at a higher rate, if the DSL line conditions permit. This field only appears if Autobaud is selected (Default = 9 dB).
Auto Baud Minimum Margin	A range of **0** to **15** dB. The lower limit for margin used by the Autobaud algorithm during training. After training, if the margin is less than the minimum margin, the card will attempt to retrain at a lower rate. This field only appears if Autobaud is selected (Default = 5 dB).
Link Down Count	A number from **0** to **900** (Default = 0 (disable). If the number of DSL Link Down events exceeds the selected number within a 15-minute period, an SNMP trap is sent. If Link Down Count is set to Disable, no Link Down trap is ever sent.
Link Up/Down Trap	Enable or Disable to enable/disable link up/down traps (Default = Enable). **Enable** – Enables link up/down traps. **Disable** – Disables link up/down traps.

4. Save the changes as prompted.

DSL Port Configuration – Model 8355

For the Model 8355, the DSL Port Configuration screen appears. The options displayed depend on whether Spectrum Management is enabled and what settings are specified in the device's factory initialization file.



Edit/Reset Model 8355 DSL Ports

▶ Procedure

To enter DSL Port Configuration screen information for the Model 8355:

1. Select an Action:

   Edit – To edit fields on the screen.

   Reset – To enable the port and cause the DSL line to retrain.

   Copy – To copy a DSL port configuation (see *Copy Model 8355 DSL Port Configurations* on page 3-15).

2. Select the Port Name of the port to be configured or reset (**dsl1** through **dsl24**).

3. For Edit mode, position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
EWL (Equivalent Working Length)	The estimated length of the line in kilofeet. This value is usually specified by the carrier. This option is available only if Spectrum Management is set to Enable on the Spectrum Management screen (menu selection **A-A-G**) and the equivalent working length parameter is specified in the device's factory initialization file. EWL = L26 + 3(L24)/4, where L26 is the total length of the 26-gauge cable in the loop excluding any bridged tap and L24 is the total length of 19, 22, or 24-gauge cable in the loop excluding any bridged tap. **8.5 – 14.5 kft** in .5 kft increments, or **>14.5 kft** (Default = 10 kft).
Loop Length	The relative loop length of the line. This value is used to limit transmit rates and maximum transmit power settings according to local spectrum management guidelines, and is usually specified by the carrier. This option is available only if Spectrum Management is set to Enable on the Spectrum Management screen (menu selection **A-A-G**), and if relative loop length is specified in the device's factory initialization file. **Short** **Medium** **Long**
Quad	The quad cable configuration. This value is used to limit transmit rates and maximum transmit power settings according to local spectrum management guidelines, and is usually specified by the carrier. This option is available only if Spectrum Management is set to Enable on the Spectrum Management screen (menu selection **A-A-G**), and if the quad cable configuration is specified in the device's factory initialization file. **Same** **Segregated<=3km** **Segregated>3km**
POTS Detection Voltage	The voltage used to detect the presence of Plain Old Telephone Service (POTS) on the DSL line: **0 – 74 volts** in 1 volt increments, or **D** for Disable (Default = 3 volts).
Maximum Tx Power ATU-C/ATU-R	The maximum transmission power settings for the ADSL Transmission Unit – Central Office (ATU-C) and ADSL Transmission Unit – Remote Site (ATU-R). The range may be limited according to local guidelines when Spectrum Management is set to Enable on the Spectrum Management screen (menu selection **A-A-G**): **+12dB – -14dB** in 1 dB increments (Default = +12dB)

For . . .	Enter . . .
Line Profile	The name of the general line configuration profile (up to 32 alphanumeric characters). Press Ctrl-v to display a list of all available line profiles configured on the card. Either select an existing profile to change, or select New Profile to create a new line configuration profile. An asterisk (*) indicates the profile is referenced by other ports. Each profile name must be unique. Up to 30 profiles can be configured. Profiles can be used by multiple ports and can be changed at any time. All ports share a single default line configuration profile as part of the factory defaults. Maximum Tx Rate, Minimum Tx Rate, and Target SNR Margin are part of the general line configuration profile.
Maximum Tx Rate ATU-C/ATU-R	The maximum transmission rate for the ATU-C and ATU-R. The range may be limited according to local guidelines when Spectrum Management is set to Enable on the Spectrum Management screen (menu selection **A-A-G**): All cards with Spectrum Management disabled: ■ ATU-C: **32** – **2176 kbps** in 32 kbps increments (Default = 2176 kbps) ■ ATU-R: **32** – **2176 kbps** in 32 kbps increments (Default = 2176 kbps) Cards with Spectrum Management enabled and EWL ≤ 11.5 kbps: ■ ATU-C: **32** – **2176 kbps** in 32 kbps increments (Default = 2176 kbps) ■ ATU-R: **32** – **1632 kbps** in 32 kbps increments (Default = 1632 kbps) Cards with Spectrum Management enabled and EWL > 11.5 kft: ■ ATU-C: **32** – **1440 kbps** in 32 kbps increments (Default = 1440 kbps) ■ ATU-R: **32** – **1088 kbps** in 32 kbps increments (Default = 1088 kbps)
Minimum Tx Rate ATU-C/ATU-R	The minimum transmission rate acceptable for the ATU-C and ATU-R. Any rate below this, sustained for at least 3 seconds, generates a Loss of Signal (LOS) status. **32 kbps – 2176 kbps** in 32 kbps increments (Default = 32 kbps).

Target SNR Margin ATU-C/ATU-R	The Signal-to-Noise Ratio (SNR) margin relative to a Bit Error Ratio of 10^{-7} required for a successful activation of the port for the ATU-C and ATU-R. The maximum SNR is always 16 dB, while the minimum is always 0 dB. The SNR margin for rate downshift is 3 dB below the Target SNR Margin. When the SNR margin falls below this level, the device will attempt to decrease its transmit rate. The SNR margin for rate upshift is 2 dB above the Target SNR Margin. When the noise margin rises above this level, the device will attempt to increase its transmit rate. Rate shifts occur as soon as the margin threshold is exceeded. **3 dB – 14 dB** in 1 dB increments (Default = 4 dB).
Alarm Profile	The name of the alarm configuration profile (up to 32 alphanumeric characters). Press Ctrl-v to display a list

For . . .	Enter . . .
Loss of Power Seconds Trap Threshold ATU-R	A number from **0** to **900,** or a **D** for Disable (Default = Disable). If the number of Loss of Power Seconds (LOP) events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no LOP trap is ever sent. If set to 1, a trap is sent after each LOP event.
Rate Increase ATU-C/ATU-R	**0** to **2176 kbps** in 32 kbps increments, or a **D** for Disable (Default = Disable). If the current rate is greater than or equal to the previous rate, plus this threshold, an SNMP trap is sent. If set to Disable, traps are disabled for the event.
Rate Decrease ATU-C/ATU-R	**0** to **2176 kbps** in 32 kbps increments, or a **D** for Disable (Default = Disable). If the current rate is less than or equal to the previous rate, minus this threshold, an SNMP trap is sent. If set to 0, traps are disabled for the event.
Link Up/Down Trap	Enable or Disable to enable/disable link up/down traps (Default = Enable). **Enable** – Enables link up/down traps. **Disable** – Disables link up/down traps.
Initialization Failure Trap ATU-C	Enable or Disable to enable/disable InitFailure traps as specified in RFC 2662 (Default = Disable). **Enable** – Enables InitFailure traps. **Disable** – Disables InitFailure traps.

4. Save the changes as prompted.

Copy Model 8355 DSL Port Configurations

▶ Procedure

To copy DSL Port Configuration screen information for the Model 8355 to/from another port:

1. Select an Action:

   Copy – To copy the configuration of one port to another port.

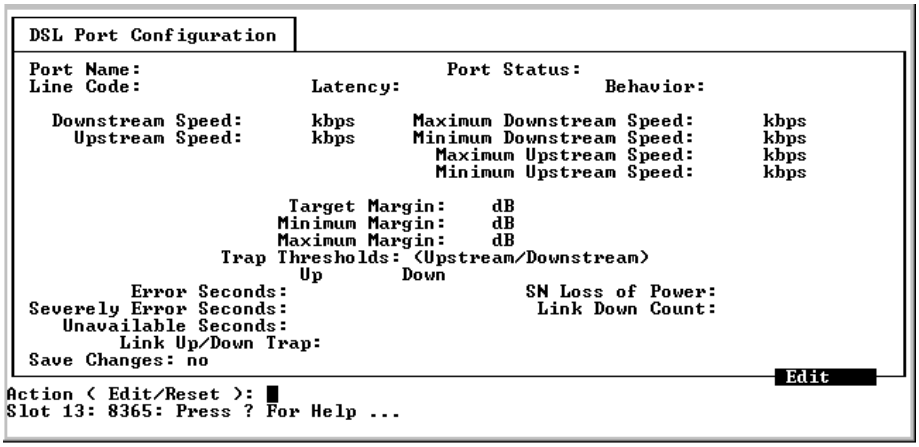
2. Enter the name of the source port to be copied (**dsl1** through **dsl24**) in the **`Copy From`** field.

3. Enter the name of the destination port for the configuration information (**dsl1** through **dsl24**) in the **`Copy To`** field.

4. Enter **yes** at the **`Save Changes?`** prompt to copy.

DSL Port Configuration – Model 8365

For the Model 8365, the following DSL Port Configuration screen appears.



▶ Procedure

To enter DSL Port Configuration screen information for the Model 8365:

1. Select an Action:

   Edit – To edit fields on the screen.

   Reset – To enable the port and cause the DSL line to retrain.

2. Select the Port Name of the port to be configured or reset (**dsl1** through **dsl12**).

3. For Edit mode, position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
Line Code	The physical transport method (Default = Multimode): **Multimode** – The line card adapts to the code the endpoint is set for. **DMT** – The line code is G.dmt (ITU 992.1). The endpoint must be set to G.dmt. **G.Lite** – The line code is G.lite (ITU 992.2). The endpoint must be set to G.lite. **ANSI** – The line code is ANSI T1.413, Issue 2. The endpoint must be set to ANSI.

For . . .	Enter . . .
Latency	The data stream path for the port (Default = Interleaved): **Fast** – The data stream uses the fast path between the line card and the endpoint. **Interleaved** – The data stream uses the interleaved path between the line card and the endpoint.
Behavior	The training behavior (Default = Adaptive): **Adaptive** – The line card will train up to the highest operational rate less than or equal to the rates set in the Downstream Maximum Speed and Upstream Maximum Speed fields. **Fixed** – The line card will train only at the rates set in the Downstream Speed and Upstream Speed fields.
Downstream Speed	The downstream DSL line rate (in 32 kbps increments) the card trains to if Behavior is set to Fixed: DMT and ANSI: **32–8000 kbps** (Default = 8000 kbps). G.lite: **64–3008 kbps** (Default = 1536 kbps).
Upstream Speed	The upstream DSL line rate (in 32 kbps increments) the card trains to if Behavior is set to Fixed: DMT and ANSI: **32–832 kbps** (Default = 832 kbps). G.lite: **32–512 kbps** (Default = 64 kbps).
Maximum Downstream Speed	The maximum downstream DSL line rate (in 32 kbps increments) the card can train to if Behavior is set to Adaptive: DMT and ANSI: **32–8000 kbps** (Default = 8000 kbps). G.lite: **64–3008 kbps** (Default = 3008 kbps).
Minimum Downstream Speed	The minimum downstream DSL line rate (in 32 kbps increments) the card can train to if Behavior is set to Adaptive: DMT and ANSI: **32–8000 kbps** (Default = 32 kbps). G.lite: **64–3008 kbps** (Default = 64 kbps).
Maximum Upstream Speed	The maximum upstream DSL line rate (in 32 kbps increments) the card can train to if Behavior is set to Adaptive: DMT and ANSI: **32–832 kbps** (Default = 832 kbps). G.lite: **64–512 kbps** (Default = 512 kbps).
Minimum Upstream Speed	The minimum upstream DSL line rate (in 32 kbps increments) the card can train to if Behavior is set to Adaptive: DMT and ANSI: **32–832 kbps** (Default = 32 kbps). G.lite: **32–512 kbps** (Default = 64 kbps).
Target Margin	The noise margin relative to a Bit Error Ratio of 10^{-7} required for a successful activation of the port : **0–31 dB** in 1 dB increments (Default = 4 dB).

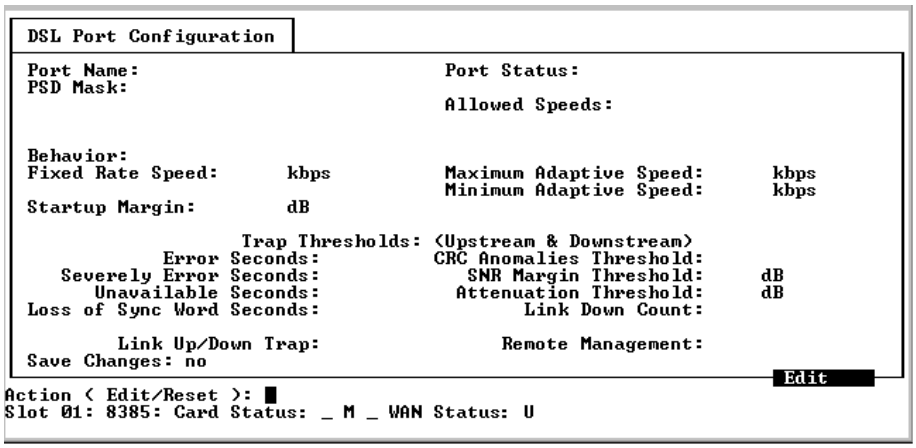
For . . .	Enter . . .
Minimum Margin	The noise margin relative to a Bit Error Ratio of 10^{-7} that the port will tolerate before attempting to increase the far-end output power: **0–31 dB** in 1 dB increments (Default = 15 dB).
Maximum Margin	The noise margin relative to a Bit Error Ratio of 10^{-7} and in addition to the Target Margin that the port will tolerate before attempting to reduce the far-end output power: **0–31 dB** in 1 dB increments (Default = 15 dB)
Error Seconds	A number from **0** to **900,** or a **D** for Disable, for upstream and downstream (Default = 120). If the number of DSL Errored Second events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Errored Second trap is ever sent. If set to 1, a trap is sent after each Errored Second event.
Severely Error Seconds	A number from **0** to **900,** or a **D** for Disable, for upstream and downstream (Default = 15). If the number of DSL Severely Errored Second (SES) events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no SES trap is ever sent. If set to 1, a trap is sent after each SES event.
Unavailable Seconds	A number from **0** to **900,** or a **D** for Disable, for upstream and downstream (Default = 1). If the number of DSL Unavailable Second (UAS) events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Unavailable Seconds trap is ever sent. If set to 1, a trap is sent after each UAS event.
SN Loss of Power Count	A number from **0** to **900,** or a **D** for Disable (Default = 1). If the number of remote Loss of Power (LOP) events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to 0, no LOP trap is ever sent. If set to 1, a trap is sent after each SN LOP event.
Link Down Count	A number from **0** to **900,** or a **D** for Disable (Default = 0). If the number of DSL Link Down events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Link Down trap is ever sent. If set to 1, a trap is sent for each Link Down Count event.

For . . .	Enter . . .
Link Up/Down Trap	Enable or Disable to enable/disable link up/down traps (Default = Enable). **Enable** – Enables link up/down traps. **Disable** – Disables link up/down traps.

4. Save the changes as prompted.

DSL Port Configuration – Model 8385

For the Model 8385, the following DSL Port Configuration screen appears.



▶ Procedure

To enter DSL Port Configuration screen information for the Model 8385:

1. Select an Action:

   Edit – To edit fields on the screen.

   Reset – To enable the port and cause the DSL line to retrain.

2. Select the Port Name of the port to be configured or reset (**dsl1** through **dsl24**).

3. For Edit mode, position the cursor in the field you wish to modify. Type the value you want and press Enter.

NOTE:

The range of allowed speeds based on spectrum management requirements as defined in either ANSI T1.417 or BT Access Network Spectrum standards are calculated and displayed on the DSL Port Configuration screen. If Spectrum Management is set to Disable on the Spectrum Management screen (menu selection **A-A-G**) (see *Setting Spectrum Management (Models 8355 and 8385)* on page 3-4), then the **`Allowed Speeds`** field will display all applicable speeds based on the Region Setting selected on the Specrum Management screen and the PSD Mask selection on the DSL Port Configuration screen.

For . . .	Enter . . .
PSD Mask	The type of Power Spectral Density (PSD) mask used as specified in G.992.1, Annex A or Annex B (Default = Symmetric). In Asymmetric mode, the transmit power of the CO unit is set to 16.8 ± 0.5 dBm and the transmit power of the CPE is set to 16.5 ± 0.5 dBm when in data mode. In Symmetric mode, the transmit power of the CO and CPE units are set to 13.5 dBm when in data mode. So, for longer reach the transmit power of the CO and CPE units are increased to help with crosstalk issues. Due to this increase in power, the power levels between the CO and CPE units are asymmetric. **Asymmetric** – The asymmetric PSD mask is used. Select Asymmetric when the remote unit transmit power level (is higher than the CO transmit power level. This selection is not available if Country Code is set to UK on the Spectrum Management screen (menu selection **A-A-G**). **Symmetric** – The symmetric PSD mask is used. Select Symmetric when the remote unit transmit power level is set to the same value as the CO transmit power level.
EWL (Estimated Working Length)	The estimated length of the line in kilofeet, or NoLoad for no load loops. This value is usually specified by the carrier. This option is available only if Spectrum Management is set to Enable and Region is set to Annex A on the Spectrum Management screen (menu selection **A-A-G**). EWL = L26 + 3(L24)/4, where L26 is the total length of the 26-gauge cable in the loop excluding any bridged tap and L24 is the total length of 19, 22, or 24-gauge cable in the loop excluding any bridged tap. **NOTE:** The EWL may have more than one range, for example, EWL = 8.5 kft – (range 2056 kbps to 832 kbps) in 64 kbps increments.

For . . .	Enter . . .
Line Length	The estimated distance from the local exchange to determine the speeds that can be supported. This value is usually specified by the carrier. This option is available only if Spectrum Management is set to Enable and Region is set to Annex B on the Spectrum Management screen (menu selection **A-A-G**). Select from the following (Default = Short): **Short** – Can support speeds up to 2056 kbps (in 64 kbps increments). **Medium** – Can support speeds up to 1480 kbps (in 64 kbps increments). **Long** – Can support speeds up to 840 kbps (in 64 kbps increments).
Allowed Speeds	Displays the range of allowed speeds based on spectrum management requirements. If Spectrum Management is set to Disable on the Spectrum Management screen (menu selection **A-A-G**), then only the applicable speeds for the Annex selected and PSD mask used are displayed. Speeds are selectable in 64 kbps increments.
Behavior	The training behavior (Default = Adaptive): **Adaptive** – The line card will train up to the highest operational rate less than or equal to the maximum fixed or adaptive speed. **Fixed** – The line card will train only at the rate set in the Fixed Rate field.
Fixed Rate Speed	The DSL line rate the card trains to if Behavior is set to Fixed. Choose from rates listed in the Allowed Speeds field. Speeds are selectable in 64 kbps increments.
Maximum Adaptive Speed	The maximum DSL line rate the card can train to if Behavior is set to Adaptive. Choose from rates listed in the Allowed Speeds field.
Minimum Adaptive Speed	The minimum DSL line rate the card can train to if Behavior is set to Adaptive. Choose from rates listed in the Allowed Speeds field.
Startup Margin	The noise margin relative to a Bit Error Ratio of 10^{-7} required for a successful activation of the port: **2 – 15 dB** in 1 dB increments (Default = 2 dB).
Error Seconds	A number from **0** to **900,** or a **D** for Disable (Default = 120). If the number of DSL Errored Second events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Errored Second trap is ever sent. If set to 1, a trap is sent after each Errored Seconds event.

For . . .	Enter . . .
Severely Error Seconds	A number from **0** to **900,** or a **D** for Disable (Default = 15). If the number of DSL Severely Errored Second events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Severely Errored Seconds trap is ever sent. If set to 1, a trap is sent after each Severely Errored Seconds event.
Unavailable Seconds	A number from **0** to **900,** or a **D** for Disable (Default = 1). If the number of DSL Unavailable Second events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Unavailable Seconds trap is ever sent. If set to 1, a trap is sent after each Unavailable Seconds event.
Loss of Sync Word Seconds	A number from **0** to **900,** or a **D** for Disable (Default =1). If the number of Loss of Sync Word Seconds events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no Loss of Sync Word Seconds trap is ever sent. If set to 1, a trap is sent after each Loss of Sync Word Seconds event.
CRC Anomaly Threshold	A number from **0** to **900,** or a **D** for Disable (Default =1). If the number of Cyclical Redundancy Check (CRC) events equals or exceeds the selected number within a 15-minute period, an SNMP trap is sent. If set to Disable or 0, no CRC Anomalies trap is ever sent. If set to 1, a trap is sent after each CRC anomaly event.
SNR Margin Threshold	A number from **0** to **15** (Default = 0). If the Signal-to-Noise (SNR) ratio (in dB) reaches or drops below the selected value, an SNMP trap is sent.
Attenuation Threshold	A number from **0** to **127** (Default = 0). If the Attenuation reaches or drops below the selected value, an SNMP trap is sent.
Link Down Count	A number from **0** to **900,** or a **D** for Disable (Default = 0). If the number of DSL Link Down events exceeds the selected number within a 15-minute period, an SNMP trap (Enterprise trap xdslLinkUpDownTransitions(1)) is sent. If Link Down Count is set to Disable or 0, no Link Down trap is ever sent. If set to 1, a trap is sent after each linkUpDownTransition event.

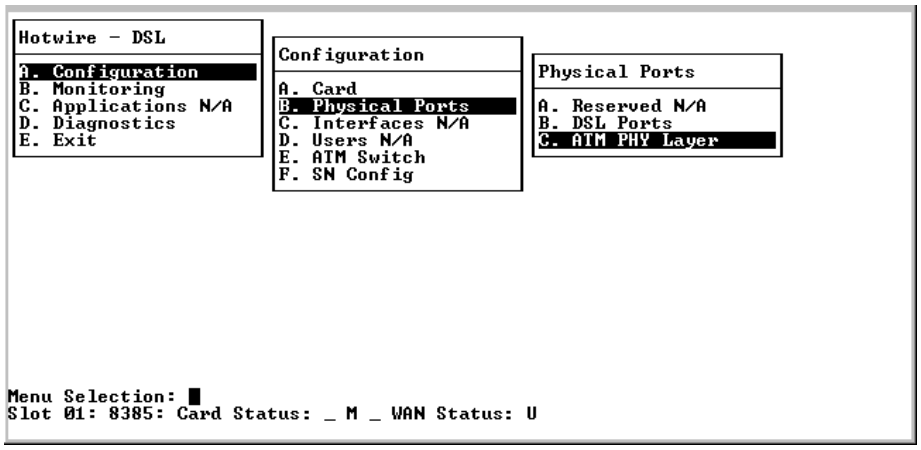
For . . .	Enter . . .
Link Up/Down Trap	Enable or Disable to enable/disable link up/down traps (Default = Enable). **Enable** – Enables link up/down traps. **Disable** – Disables link up/down traps.
Remote Management	Enable or Disable to enable/disable support for remote management of devices on the SHDSL line from the STU-R via the Embedded Operations Channel (EOC) (Default = Enable). **Enable** – Enables remote management support. **Disable** – Disables remote management support.

4. Save the changes as prompted.

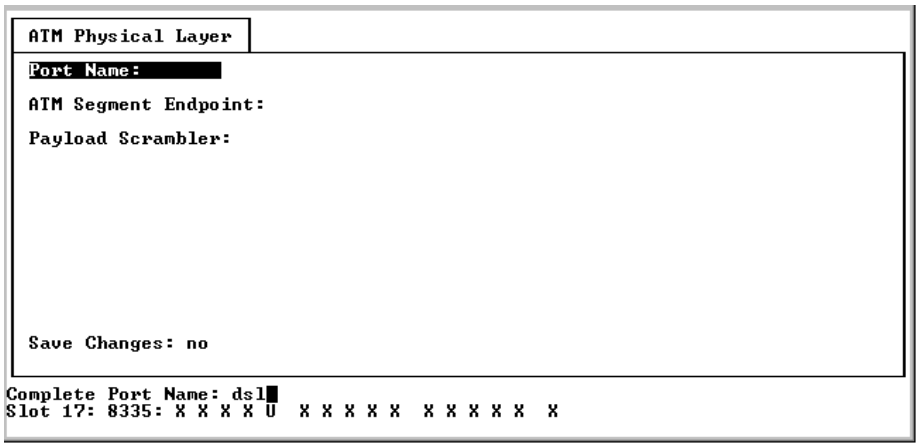
Configuring the ATM Physical Layer (Models 8335, 8365, and 8385)

Determine whether this card will function as an endpoint for ATM OAM loopbacks from the ATM Physical Layer screen. To access the ATM Physical Layer screen, follow this menu selection sequence:

Configuration→*Physical Ports*→*ATM PHY Layer* (**A-B-C**)



The ATM Physical Layer screen appears.



▶ Procedure

To enter ATM Physical Layer screen information:

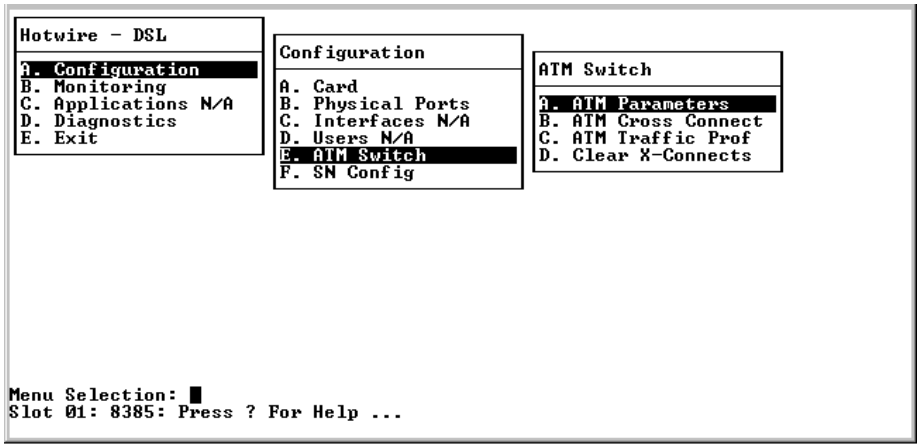
1. Select the Port Name of the port to be configured (**dsl1:1** through **dsl16:1** on the Model 8335, **dsl1:1** through **dsl12:1** on the Model 8365, or **dsl1:1** through **dsl24:1** on the Model 8385).
2. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
ATM Segment Endpoint	**Enable** – Defines the port as a segment loopback. The card will check the location ID in a loopback cell and loop the cell if the location ID is valid. Otherwise, the cell will be dropped. A valid location ID matches the preconfigured ID or an all-ones ID. **Disable** – The line card will loop a cell only if the location ID matches the preconfigured location ID. All other loopback cells are passed to the next segment (Default = Disable).
Payload Scrambler (Models 8335 and 8365 only)	**Enable** – Payload scrambling (as defined in ITU I.432) is enabled (Default = Enable). **Disable** – Payload scrambling is disabled.

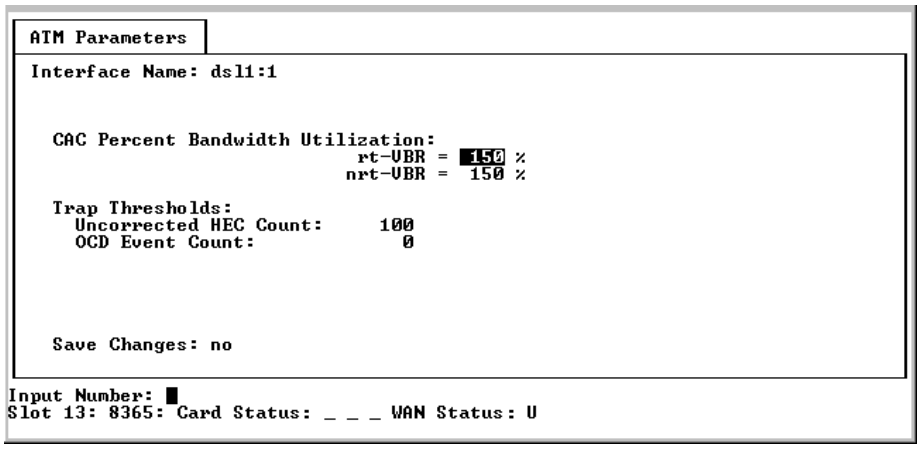
Configuring ATM Parameters

Set ATM parameters using the ATM Parameters screen. To access the ATM Parameters screen, follow this menu selection sequence:

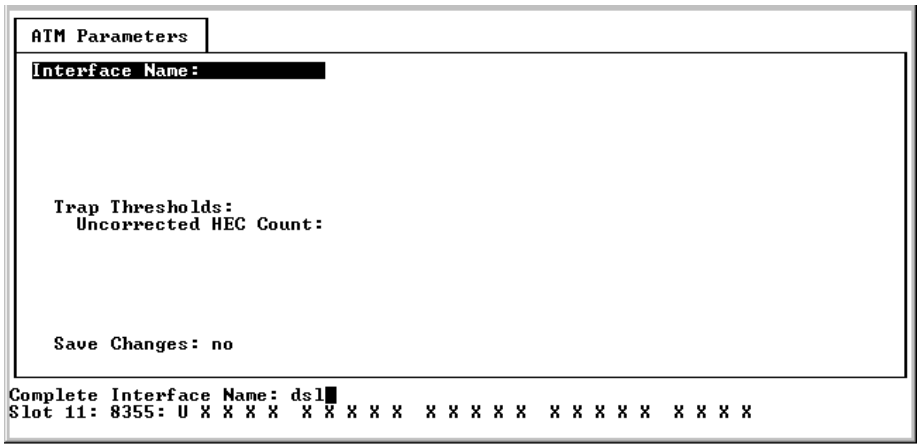
Configuration→*ATM Switch*→*ATM Parameters* (**A-E-A**)



For the Models 8335, 8365, and 8385, the following ATM Parameters screen appears:



For the Models 8355, the following ATM Parameters screen appears:



▶ Procedure

To configure ATM parameters:

1. Select the interface to be changed (**dsl1:1** through **dsl16:1** on the Model 8335, **dsl1:1** through **dsl12:1** on the Model 8365, or **dsl1:1** through **dsl24:1** on the Models 8355 and 8385).
2. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

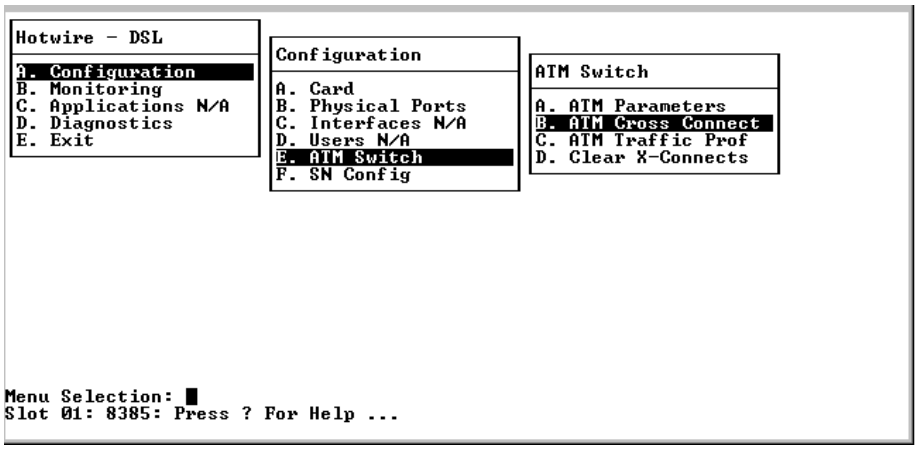
For . . .	Enter . . .
CAC Percent Bandwidth Utilization (Models 8335, 8365, and 8385 only)	A percentage from **0** to **9999** (Default = 150 for both rt-VBR and nrt-VBR classes of service). The values represent the amount of oversubscription the Connection Admission Control algorithm allows for the class of service.
Uncorrected HEC Count	A number from **0** to **1000,** or a **D** for Disable (Default = 100). If the number of HEC errors exceeds the selected number within a 15-minute period, an SNMP trap is sent. If Uncorrected HEC Count is set to Disable or 0, no trap is ever sent. If set to 1, a trap is sent after each Uncorrected HEC Count event.
OCD Event Count (Models 8335, 8365, and 8385 only)	A number from **0** to **1000,** or a **D** for Disable (Default = 0). If the number of Out of Cell Delineation (OCD) events exceeds the selected number within a 15-minute period, an SNMP trap is sent. If OCD Count is set to Disable or 0, no trap is ever sent. If set to 1, a trap is sent after each OCD Event Count event.

3. Save the changes as prompted.

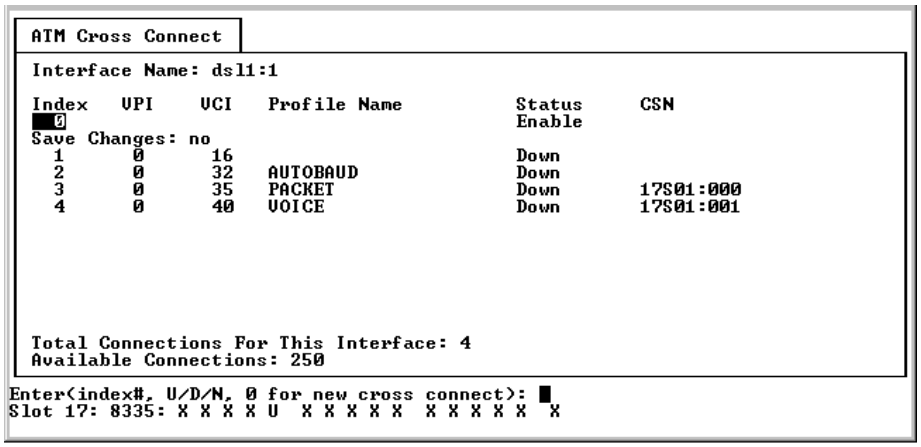
Configuring ATM Cross Connections

Configure virtual circuit connections from the line card to the endpoint with the ATM Cross Connect screen. To access the ATM Cross Connect screen, follow this menu selection sequence:

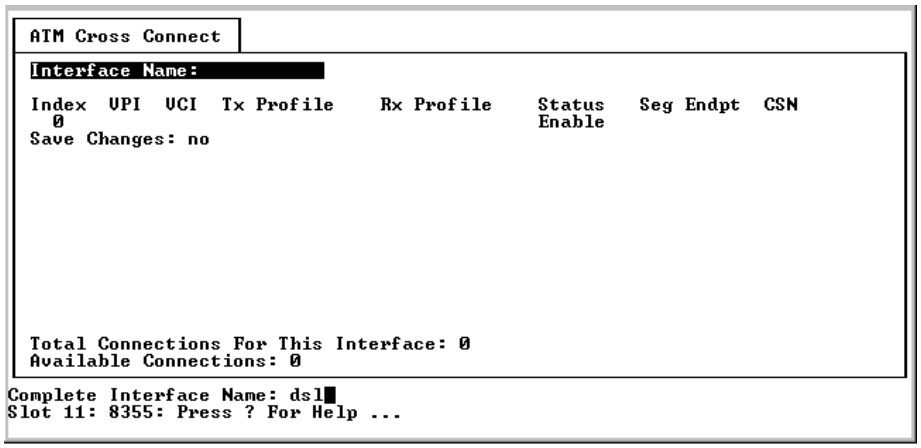
Configuration→*ATM Switch*→*ATM Cross Connect* (**A-E-B**)



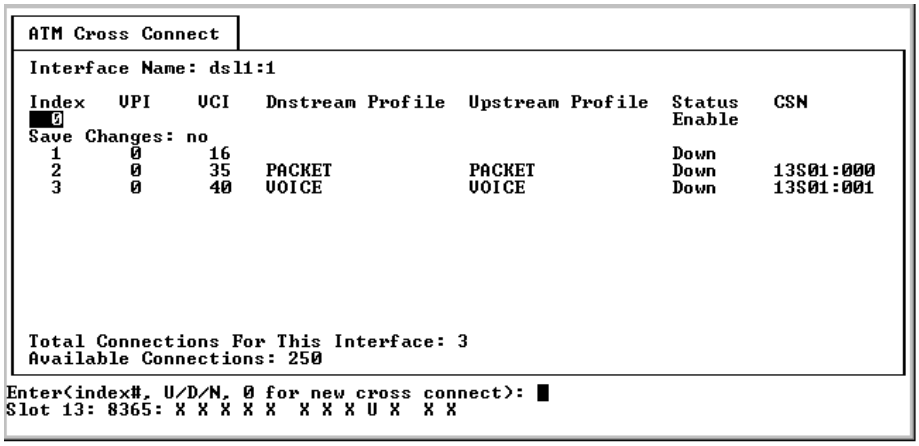
For the Model 8335, the following ATM Cross Connect screen appears:



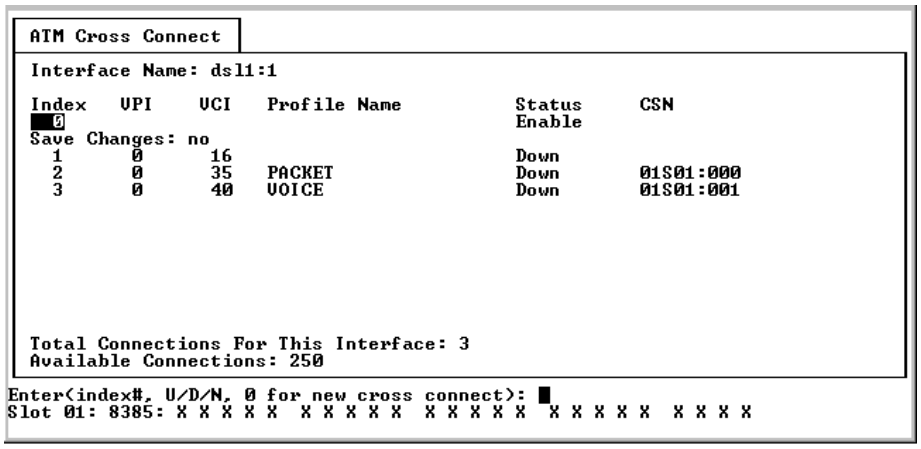
For the Model 8355, the following ATM Cross Connect screen appears:



For the Model 8365, the following ATM Cross Connect screen appears:



For the Model 8385, the following ATM Cross Connect screen appears:



▶ Procedure

To configure ATM cross connections:

1. Select the interface to be changed (**dsl1:1** through **dsl16:1** on the Model 8335, **dsl1:1** through **dsl12:1** on the Model 8365, or **dsl1:1** through **dsl24:1** on the Model 8355 and Model 8385).
2. Select the Index number of the VC (Virtual Channel) you wish to modify, or 0 to add a new VC.
   - — Total Connections for this Interface shows the number of connections defined for the interface.
   - — Available Connections displays the number of connections still available for the card.

   To scroll to the previous or next group of connections, type **u** (for Up) or **d** (for Down) in the Index field.
3. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
VPI	The VPI (Virtual Path Identifier) of the connection, from **0** to **15**.
VCI	The VCI (Virtual Channel Identifier) of the connection from **32** to **255**.
Profile Name (Models 8335 and 8385)	A default or user-defined ATM traffic profile. Default traffic profiles include **AUTOBAUD** (Model 8335 only), **IP MGT** (Model 8365 only), **PACKET**, and **VOICE.** See *Configuring ATM Traffic Profiles* on page 3-32. Press Ctrl-v for a list of valid downstream profiles.
Tx Profile/Rx Profile (Model 8355)	For the Model 8355, define the profile to be used for ATM traffic both leaving (Tx or downstream) and entering (Rx or upstream) the interface.
Dnstream Profile/ Upstream Profile (Model 8365)	For the Model 8365, define the profile to be used for both the downstream and upstream connections.
Status	**Enable** – To enable the connection. **Disable** – To disable the connection. **Delete** – To delete the connection. For a connection that already exists, the system displays one of: **Up** – VPI/VCI is operational. **Down** – VPI/VCI is not operational.

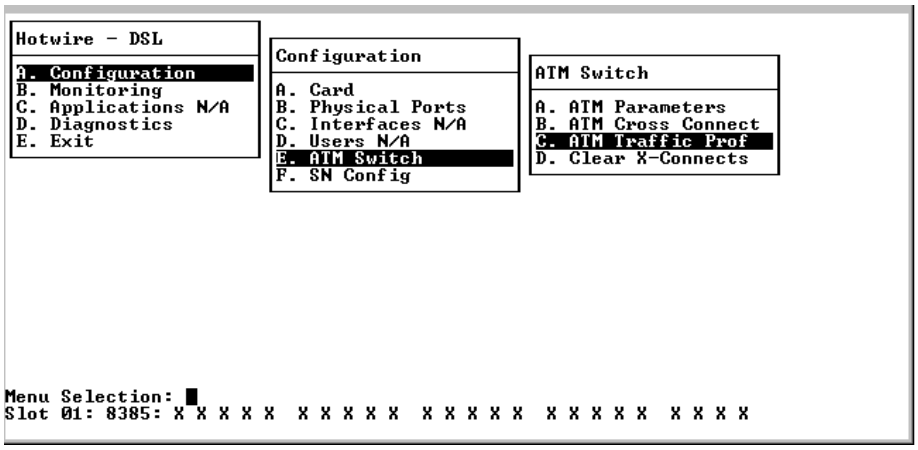
For . . .	Enter . . .
Seg Endpt (Model 8355 only)	Enable or Disable to determine if the card will function as an endpoint for ATM Operations, Adminstration and Maintenance (OAM) loopbacks on the connection. **Enable** – To define the card as a segment loopback on this connection. The line card will then check the location ID in a loopback cell and loop the cell if the location ID is valid. If it is not valid (the location ID does not match the preconfigured ID or an all-ones ID), the cell will be dropped (Default = Enable). **Disable** – To loop a cell only if the location ID matches the preconfigured location ID. All other loopback cells are passed to the next segment.
CSN	The Connection Serial Number (CSN) is an automatically generated identifier for this connection that associates it with a connection on the SCM card. It consists of the following: ■ Slot Number (**01–18** for the 8820 GranDSLAM, **01–03** for the 8620 GranDSLAM) ■ Connection Type (**S** for Standard or **C** for Custom) ■ Port Number (**01–16** on the Model 8335, **01–12** on the Model 8365, or **01–24** on the Model 8355 or 8385) ■ A system-assigned 3-digit sequence number. You must enter this value on the Cross Connect screen for the SCM card (where it is labeled VID) to make a connection through the system.

4. Save the changes as prompted.

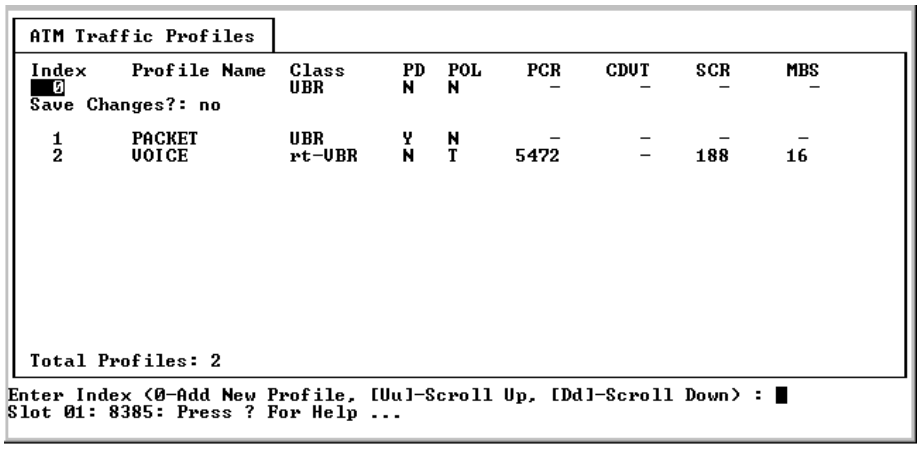
Configuring ATM Traffic Profiles

View and create ATM traffic profiles from the ATM Traffic Profiles screen. Profiles define quality of service and other attributes to control traffic in the network. To access the ATM Profiles screen, follow this menu selection sequence:

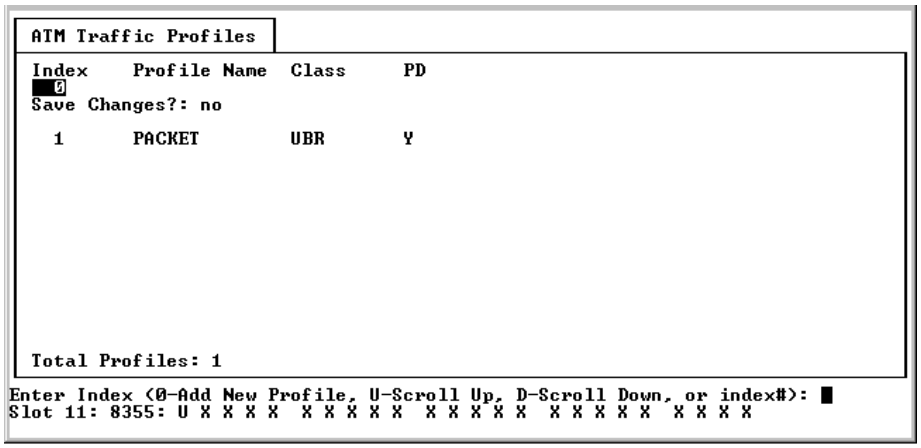
Configuration→ATM Switch→ATM Traffic Prof (**A-E-C**)



For the Models 8335, 8365, and 8385, the following ATM Traffic Profiles screen appears:



For the Model 8355, the following ATM Traffic Profiles screen appears:



The traffic profiles initially displayed are predefined and cannot be altered. Table 3-1, Traffic Profile Characteristics, shows their characteristics.

Table 3-1. Traffic Profile Characteristics

Profile Name	Class	PD	POL	PCR	CDVT	SCR	MBS
AUTOBAUD	UBR	N	N	–	–	–	–
IP MGT	UBR	Y	N	–	–	–	–
PACKET	UBR	Y	N	–	–	–	–
VOICE	rt-VBR	N	T	1572	–	188	16

PD = Packet Discard, POL = Policing, PCR = Peak Cell Rate,
CDVT = Cell Delay Variation Tolerance, SCR = Sustainable Cell Rate,
MBS = Maximum Burst Size

- **AUTOBAUD** (Model 8335 only): This profile allows for packet traffic to the endpoint that is used during training of the DSL link. It is also used to retrieve statistics from the endpoint during normal operation. There is no PCR (Peak Cell Rate) associated with the profile, since there is no policing.
- **IP MGT** (Models 8335 and 8385 only): This profile is for a management path to the endpoint that is used by the Network Access Provider to manage the endpoint. This traffic could include SNMP or Telnet traffic. This connection is not policed.
- **PACKET:** This profile allows packet data traffic up to the maximum that the DSL link can handle. There is no policing associated with this connection. The priority mechanism will ensure that the voice traffic to be sent ahead of the data traffic. This is the only default profile for the Model 8355.

- **VOICE** (Models 8335, 8365, and 8385 only): This profile allocates enough bandwidth for one voice call (approximately 80 kbps). If more than one voice call is placed on the connection using this profile, then the cells will be tagged (CLP bit set). This profile is policed to 188 cells/sec (enough for one phone call).

Some numeric values on the ATM Traffic Profiles screen represent cells per second. An ATM cell is 53 bytes (48 bytes of data plus 5 bytes of overhead), or 424 bits. Conversion guidelines are listed in Table 3-2, Conversion Guidelines.

Table 3-2. Conversion Guidelines

For Standard Speeds		For Nx128k Speeds	
Kilobits per second . . .	**Equals cells per second . . .**	**Kilobits per second . . .**	**Equals cells per second . . .**
2320	5471	1536	3623
1552	3660	1024	2415
1168	2755	768	1811
784	1849	512	1208
528	1245	384	906
400	943	256	604
272	642	144	340
144	340		

A voice circuit typically requires 80 kbps, which is 188 cells per second. ATM cells are 53 bytes in length (a 5-byte header and 48 bytes for payload). After allowing 4 bytes for the AAL2 overhead, you have approximately 44 bytes available for data. Therefore, the total overhead is 53/44. For a 64 kbps stream, this results in 77.1 kbps (64 x 53/44). The 80 kbps allows extra bandwidth for additional inband signaling.

The ATM line cards implement Usage Parameter Control (otherwise known as policing) as described in the ATM Forum's Traffic Management Specification 4.1 (AF-TM-0121.000). According to this specification, traffic contracts for the two VBR ATM service categories (rt-VBR and nrt-VBR) include traffic parameters for Peak Cell Rate (PCR) and Sustainable Cell Rate (SCR). Policing is implemented using the recommended dual Generic Cell Rate Algorithm (GCRA) functions.

A problem arises when configuring the two GCRA functions as recommended by TM 4.1 if you specify VBR service and set PCR and SCR to the same value (PCR=SCR). The Maximum Burst Size (MBS) parameter then becomes irrelevant and both GCRA functions end up with the same increment and limit values. This occurs because in every available VBR policing configuration, the action taken for nonconforming cells by the first GCRA function is a superset (more severe or at least as severe as) the action taken by the second GCRA function; the second GCRA function has no effect. Therefore, if you specify a VBR service category and set PCR equal to SCR, the line card uses a single GCRA with the increment based on PCR and limit based on CDVT. The line card ensures conformance only to the PCR value within the CDVT range (specified or default). The MBS parameter has no effect.

▶ Procedure

To configure ATM traffic profiles:

1. Select the Index number (1–10) of the traffic profile you wish to modify, or 0 to add a new traffic profile. Factory default traffic profiles are read-only.

   To scroll to the previous or next group of profiles, type **u** (for Up) or **d** (for Down) in the Index field.

2. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
Profile Name	Up to 12 alphanumeric characters.
Class	The class of service (listed below in priority order): **CBR** – Constant Bit Rate. **rt-VBR** – Real-time Variable Bit Rate. **nrt-VBR** – Non-real-time Variable Bit Rate. **UBR** – Unspecified Bit Rate. This is the only class available for Model 8355.
PD	The Early Packet Discard (EPD) and Partial Packet Discard (PPD) features setting: **Yes** – EPD and PPD are used when congestion is detected. **No** – EPD and PPD are not used.
POL (Models 8335, 8365, and 8385 only)	The Policing mode: **N** – None. All cells are forwarded to the SCM. **T** – Tag. All cells are forwarded to the SCM, but nonconforming cells (cells which do not comply with the traffic contract) have their Cell Loss Priority bits set to 1. **D** – Drop. Nonconforming cells are dropped.
PCR (Models 8335, 8365, and 8385 only)	The Peak Cell Rate. Permitted values are **1** up to the DSL line rate.

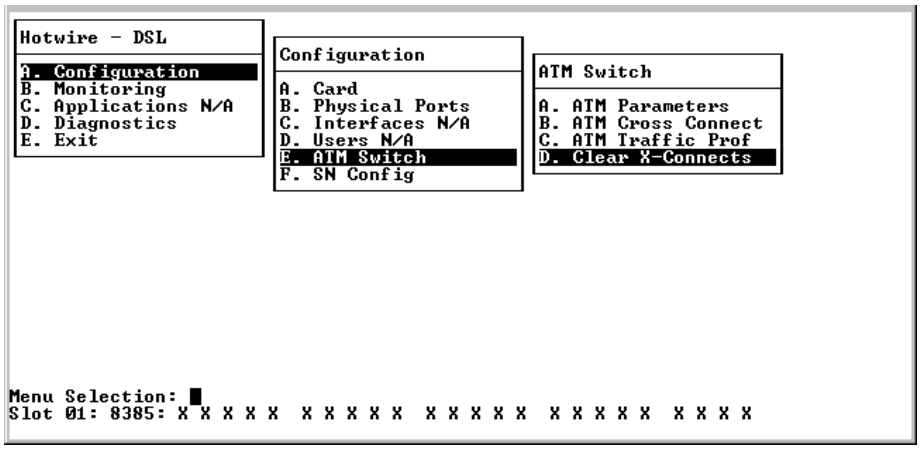
For . . .	Enter . . .
CDVT (Models 8335, 8365, and 8385 only)	The Cell Delay Variation Tolerance, in tenths of microseconds. Permitted values are **1** through **156000**.
SCR (Models 8335, 8365, and 8385 only)	The Sustained Cell Rate, if applicable. Permitted values are **1** up to the PCR.
MBS (Models 8335, 8365, and 8385 only)	The Maximum Burst Size, if applicable. Permitted values are **1** up to 1000 cells/sec.

3. Save the changes as prompted.

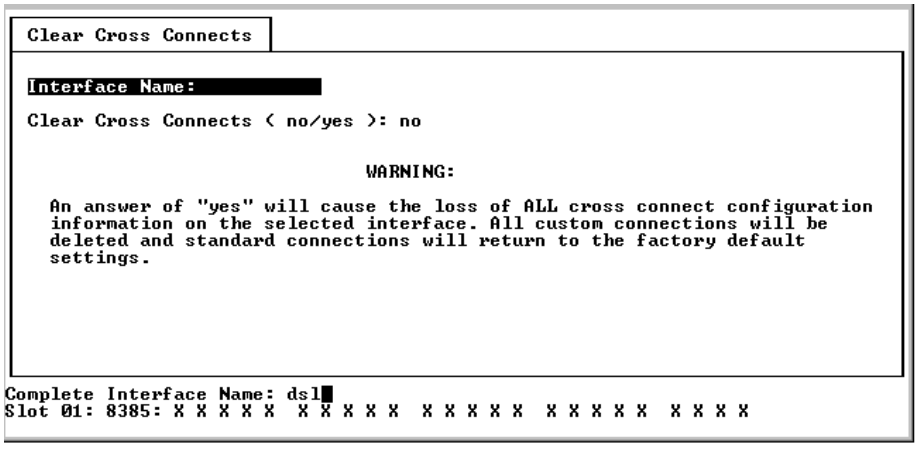
Clearing Cross Connections

Delete all user-defined ATM connections for an interface using the Clear Cross Connects screen. This is useful if you have downloaded a configuration for a different network, or have defined a large number of connections in error. To access the Clear Cross Connects screen, follow this menu selection sequence:

Configuration→*ATM Switch*→*Clear X-Connects* (**A-E-D**)



The Clear Cross Connects screen appears.



▶ Procedure

To clear cross connects:

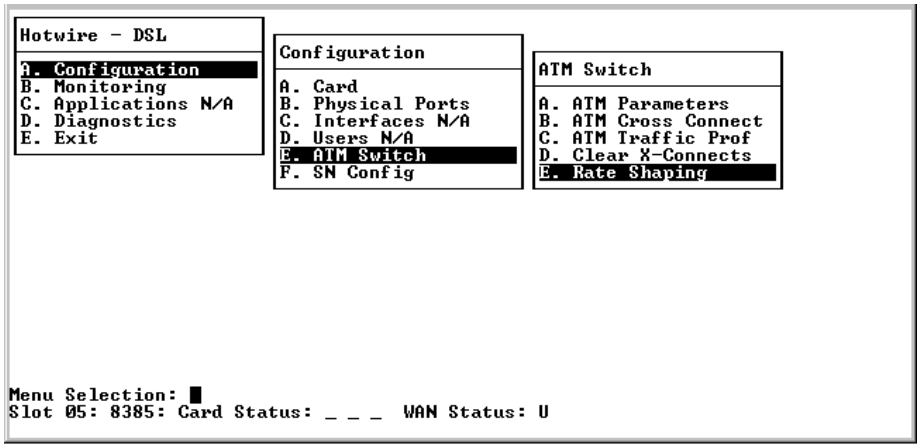
1. Select the interface to be cleared (**dsl1:1** through **dsl16:1** on the Model 8335, **dsl1:1** through **dsl12:1** on the Model 8365, or **dsl1:1** through **dsl24:1** on the Model 8355 and Model 8385).
2. Select Yes and press Enter.

   Do not select Yes unless you wish to delete all the Custom connections on the interface.

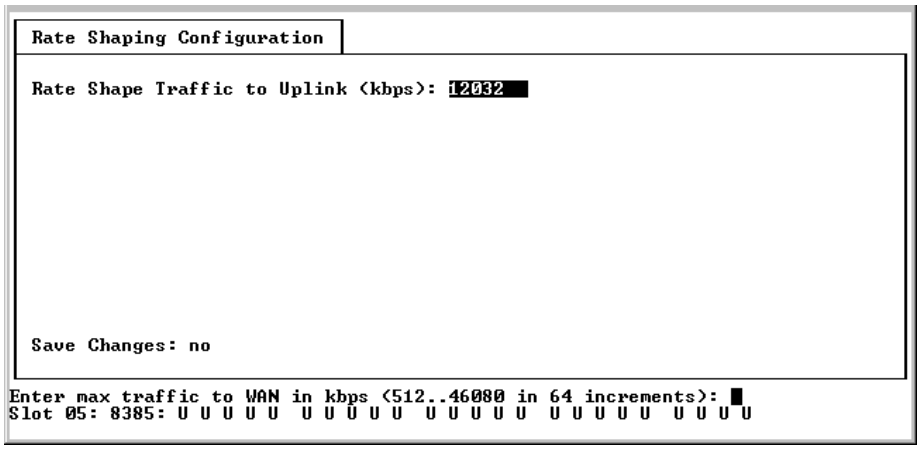
Configuring Rate Shaping (Models 8335, 8365, 8385)

Configure rate shaping for ATM traffic being sent to the SCM card. To access the Rate Shaping screen, follow this menu selection sequence:

Configuration→*ATM Switch*→*Rate Shaping* (**A-E-E**)



The Rate Shaping Configuration screen appears.



▶ Procedure

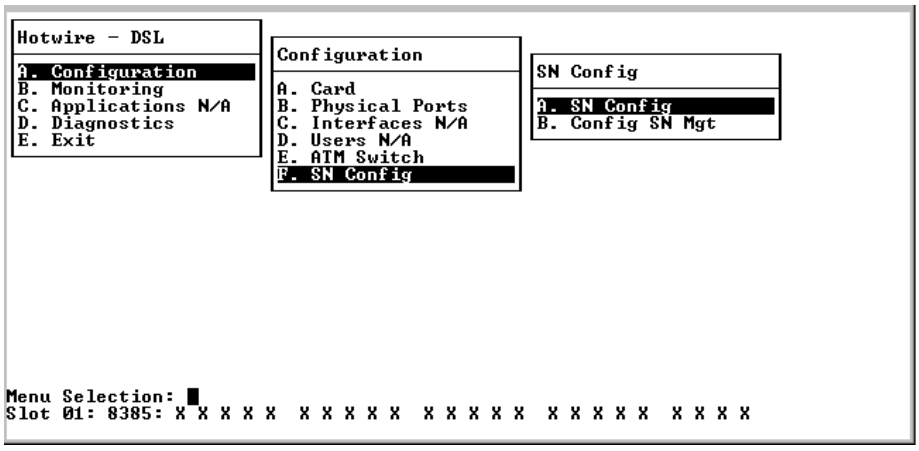
To configure rate shaping:

1. Select the interface to be changed (**dsl1:1** through **dsl24:1** on the Model 8385).
2. Enter the rate shape value limit for WAN traffic (**512** kbps to **46080** kbps in 64 kbps increments), or **d** to disable rate shaping. Setting the rate shape limit to 0 or d turns rate shaping off, which is the same a setting the limit to 46080 kbps. The default value is 27000 kbps.
3. Press Ctrl-z and save the changes as prompted.

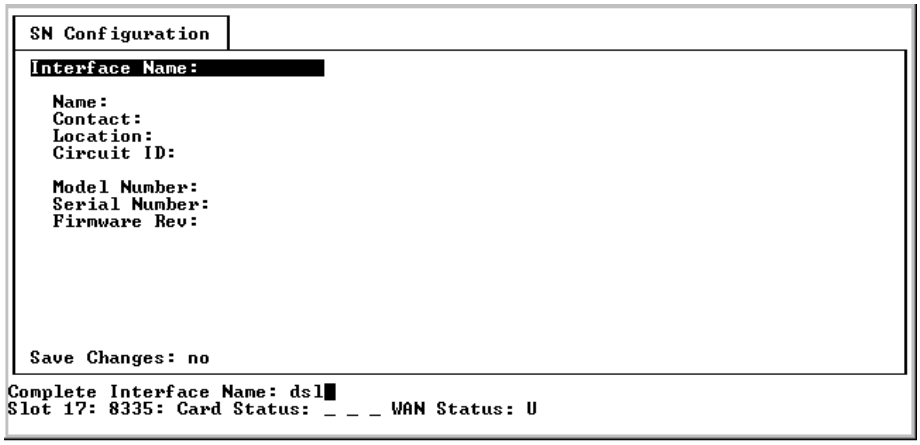
Entering Service Node Configuration Information (Models 8335, 8365, and 8385)

Record information about the endpoint using the SN (Service Node) Configuration screen. To access the SN Configuration screen, follow this menu selection sequence:

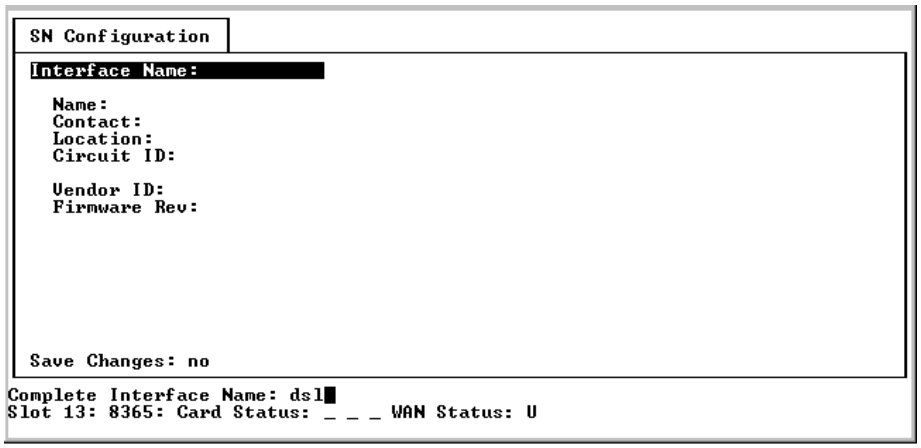
Configuration→*SN Configuration*→*SN Config* (**A-F-A**)



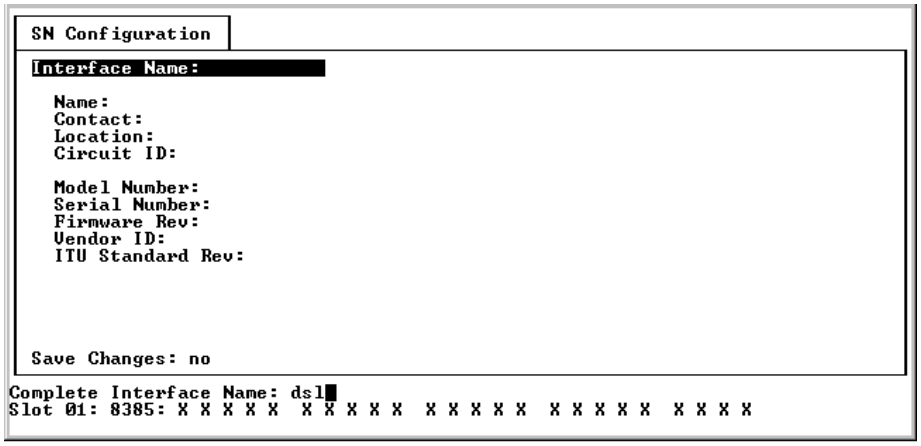
For the Model 8335, the following SN Configuration screen appears.



For the Model 8365, the following SN Configuration screen appears.



For the Model 8385, the following SN Configuration screen appears.



▶ Procedure

To enter SN Configuration screen information:

1. Select the interface to be changed (**dsl1:1** through **dsl16:1** on the Model 8335, **dsl1:1** through **dsl12:1** on the Model 8365, or **dsl1:1** through **dsl24:1** on the Model 8385).
2. Position the cursor in the field on the top half of the screen that you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
Name	Up to 16 alphanumeric characters to identify the endpoint (Default = blank).
Contact	Up to 32 alphanumeric characters to identify the person or organization responsible for the endpoint (Default = blank).
Location	Up to 16 alphanumeric characters to identify the location of the endpoint (Default = blank).
Circuit ID	Up to 32 alphanumeric characters to identify the circuit (Default = blank).

NOTES:

— The fields listed above are stored in the Paradyne enterprise MIB. Values for these fields may have already been retrieved from the attached endpoint if this information has been configured at the endpoint. If no information is provided from the endpoint, you can enter it here. If you attempt to enter information into fields already configured at the endpoint, your entries will not be saved.

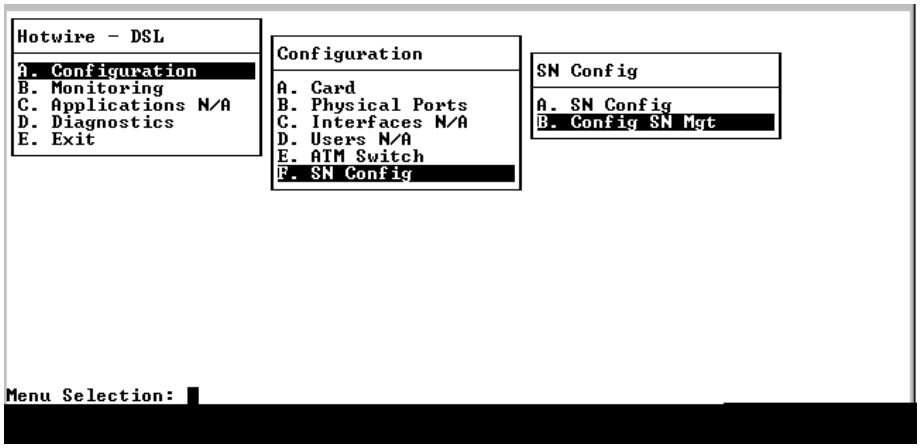
— The fields at the bottom of the screen are read-only. This information is retrieved from the endpoint when the line is operational. If the endpoint does not provide information for one or more of these fields, blanks are displayed.

3. Press Ctrl-z and save the changes as prompted.

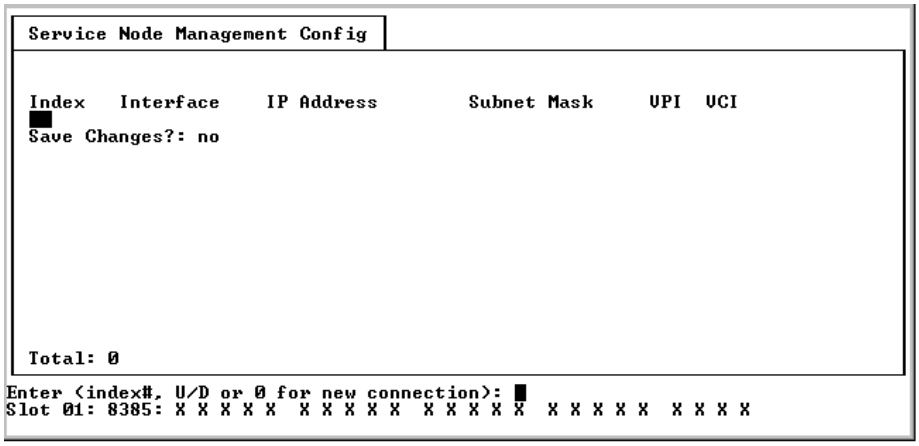
Entering Service Node Management Configuration Information (Models 8335 and 8385)

For Models 8335 and 8385 only, enter or change the connection that the DSL provider uses for IP management of the SN. This connection will be maintained through a power recycle. To access the SN Management Config screen, follow this menu selection sequence:

Configuration→*SN Config*→*Config SN Mgt* (**A-F-B**)



The Service Node Management Config screen appears.



▶ Procedure

To configure SN management:

1. Select the Index number (1–10) of the management channel(s) you wish to modify, or 0 to add a new management channel.

   To scroll to the previous or next group of management channels, type **u** (for Up) or **d** (for Down) in the Index field.

2. Position the cursor in the field you wish to modify. Type the value you want and press Enter.

For . . .	Enter . . .
Interface	Select the interface to be configured (**dsl1:1** through **dsl16:1** on the Model 8335 or **dsl1:1** through **dsl24:1** on the Model 8385).
IP Address	The IP address that the DSL provider will use to manage the SN. Duplicate endpoint/management IP addresses are not allowed. This field is normally specified through the NMS interface, although you can also specify it here. If you clear this field, the route to the SN and the ATM connection are deleted.
Subnet Mask	The IP subnet mask that the DSL provider will use to manage the SN. This field is normally specified through the NMS interface, although you can also specify it here.
VPI	The VPI of the connection, from **0** to **15** (Default = 0). The default of 0 should be used in most cases since all certified SNs are configured to use the factory default.
VCI	The VCI of the connection, from **32** to **255** (Default = 33). The default of 33 should be used in most cases since all certified SNs are configured to use the factory default.

3. Press Ctrl-z and save the changes as prompted.

Monitoring

4

What to Monitor

This chapter presents information on how to monitor unit status and assess performance by:

- *Viewing Card Status and Information* on page 4-2
  - — View card information, date and time, and system log.
- *Viewing Physical Ports Status* on page 4-4
  - — View the list of active ports, ATM physical layer information, DSL link performance, and DSL error statistics.
- *Monitoring ATM Activity* on page 4-11
  - — View the ATM parameters, cross connections, aggregate statistics, VCC performance statistics, the unknown cell log, and ATM connection status.
- *Monitoring SN Information* on page 4-18
  - — View system information about the Service Node.
- Viewing the *Front Panel LEDs* on page 4-20
  - — Check ATM bus and DSL port activity.

Viewing Card Status and Information

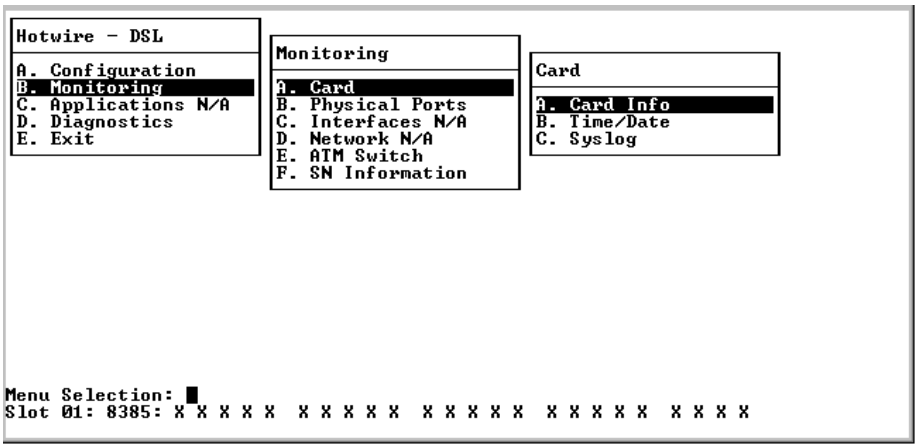
Use the Card screens to display information about the system.

▶ Procedure

To view general card information, time and date, and the system log:

1. Follow this menu selection sequence:

   Monitoring→*Card* (**B-A**)



2. Select the submenu option as shown in Table 4-1, Monitoring – Card Options, and press Enter.

Table 4-1. Monitoring – Card Options

Card Info Screen	**B-A-A**

Displays card information entered on the Card Info configuration screen and internal to the card:

Card Name – The name assigned to the card.

Card Contact – Information about the person responsible for the card.

Card Location – The location of the system.

Card Up Time – Time elapsed (in days, hours, minutes, and seconds) since the card was last powered up or reset.

Type – The type of card (DSL).

Model Number – The model number of card.

Serial Number – The serial number of card.

Firmware Revision – The firmware version number.

Hardware Revision – The hardware version number.

Line Code Revision – The digital signal processor code version number.

PLD Revision – The Programmable Logic Devices (PLD) code version number.

Specific PLD Revision (Models 8355 and 8385 only) – The Programmable Logic Devices (PLD) code version number for additional devices on this card.

Time/Date Screen	**B-A-B**

Displays the line card's time and date, which is maintained by the MCP. Time and date can be changed from an MCP configuration screen. See the *Hotwire Management Communications Controller (MCC) Card, IP Cons13.3((M)-9c-0. Re*

Viewing Physical Ports Status

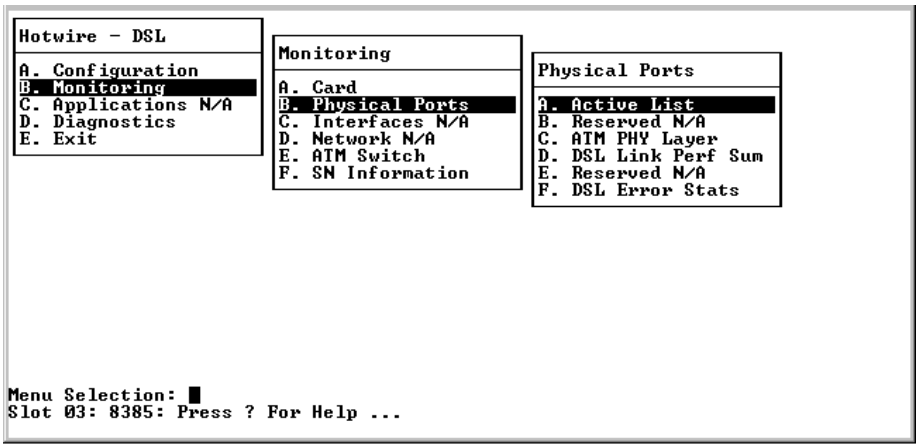
Use the Physical Ports screens to display information about physical ports.

▶ Procedure

To view the active ports list and DSL statistics:

1. Follow this menu selection sequence:

   Monitoring→*Physical Ports* (**B-B**)



2. The Physical Ports menu appears. Select the submenu option as shown in Table 4-2, Monitoring – Physical Ports, and press Enter.

Table 4-2. Monitoring – Physical Ports (1 of 6)

Active List Screen	**B-B-A**
Displays a list of the current status of all the active ports. Scroll through the ports by entering D for Down or U for Up, or enter a port number to have that port displayed at the top of the screen. **Num** – Number of the port. **Name** – Name of the port (dsl1 through dsl16 on the Model 8335, dsl1 through dsl12 on the Model 8365, and dsl1 through dsl24 on the Model 8355 or Model 8385). **Status** – Status of the port: ■ In-use: The port is enabled and in communication with the endpoint. ■ Disconnected: The port was previously connected to the endpoint, but no longer detects energy on the line. For Model 8355, could also indicate that the line is dormant. ■ Training/Dormant (Models 8335, 8365, and 8385): The port is waiting for outside input. The port has either detected energy on the line and is attempting to establish communication with the endpoint, or the port has never detected energy on the line and is dormant. ■ Training (Model 8355): The port has detected energy on the line and is attempting to establish communication with the endpoint. ■ Test: A disruptive test is being run on the port. ■ Disabled: The port has been administratively disabled.	
ATM Physical Layer Screen – Models 8335, 8365, and 8385 Only	**B-B-C**
Shows configuration settings for the ATM physical layer. Enter a port name (dsl1 through dsl16 on the Model 8335, dsl1 through dsl12 on the Model 8365, and dsl1 through dsl24 on the Model 8385) to see configuration settings. **ATM Segment Endpoint** – Indicates whether connections on this port are configured to act as segment endpoints for ATM OAM loopbacks as defined in ITU I.610. **Payload Scrambler** – Indicates whether payload scrambling as defined in ITU I.432 is enabled.	

Table 4-2. Monitoring – Physical Ports (2 of 6)

DSL Link Performance Summary Screen – Model 8335	B-B-D
Shows performance statistics for the DSL link at the physical layer. Enter a port name (dsl1–dsl16) to see statistics for the current 15-minute period, previous 15-minute period, previous 1-hour period, and current day. **Operating Speed** – The DSL line speed in kbps. **Down Margin** – The margin reported by the endpoint, in dB. The larger the number, the higher the link's tolerance to noise. **Down Attenuation** – The signal attenuation reported by the endpoint, in dB. Generally, the larger the number, the longer the loop. **Up Margin** – The margin detected by the line card, in dB. The larger the number, the higher the link's tolerance to noise. **Up Attenuation** – The signal attenuation detected by the line card, in dB. Generally, the larger the number, the longer the loop. **Current Link Up Time** – The amount of time since the link became operational, in days, hours, minutes, and seconds. **Card Up Time** – The amount of time since the line card was last reset, in days, hours, minutes, and seconds. **Link Down Count** – The number of times the DSL link has gone down during the specified period. **Current Interval Counter** – The amount of time elapsed in the current 15-minute interval.	
DSL Link Performance Summary Screen – Model 8355	**B-B-D**
Shows performance statistics for the DSL link at the physical layer. Enter a port name (dsl1–dsl24) to see current statistics. **CPE Vendor ID** – The manufacturer of the endpoint. **ATU-R/ATU-C Margin** – The noise margin reported by the endpoint (ATU-R) or the line card (ATU-C), in dB. The larger the number, the higher the link's tolerance to noise. **ATU-R/ATU-C Attenuation** – The signal attenuation reported by the endpoint (ATU-R) or the line card (ATU-C), in dB. Generally, the larger the number, the longer the loop. **ATU-R/ATU-C Transmit Power** – The transmit power level reported by the endpoint (ATU-R) or the line card (ATU-C), in dB. **Current Link Up Time** – The amount of time since the link became operational, in days, hours, minutes, and seconds. **Card Up Time** – The amount of time since the line card was last reset, in days, hours, minutes, and seconds. **ATU-R/ATU-C Current Tx Speeds** – The current transmit DSL line speed in kbps for the endpoint (ATU-R) and the line card (ATU-C). **ATU-R/ATU-C Previous Tx Speeds** – The transmit DSL line speed in kbps for the endpoint (ATU-R) and the line card (ATU-C) at the last rateChange trap, or if no rateChange trap has occurred, at line initialization. **ATU-R/ATU-C Attainable Speeds** – The maximum attainable DSL line speed in kbps for the endpoint (ATU-R) and the line card (ATU-C) for the current configuration and line conditions. **ATU-R/ATU-C Relative Capacity** – The operating speed for the endpoint (ATU-R) and the line card (ATU-C) relative to the attainable speed expressed as a percentage for the data path.	

Table 4-2. Monitoring – Physical Ports (3 of 6)

DSL Link Performance Summary Screen – Model 8365	B-B-D
Shows performance statistics for the DSL link at the physical layer. Enter a port name (dsl1–dsl12) to see current statistics. **CPE Vendor ID** – The manufacturer of the endpoint. **Latency** – The channel used by the data stream, either Interleave or Fast path. **Line Code** – The line code selected for the port either DMT, G.Lite, or ANSI. **Card Up Time** – The amount of time since the line card was last reset, in days, hours, minutes, and seconds. **Percent Link Up** – The percentage of time the link has been up relative to the line card. **Operating Speeds** – The DSL line speed in kbps for the downstream and upstream data paths. **Down Margin** – The margin reported by the endpoint, in dB. The larger the number, the higher the link's tolerance to noise. **Down Attenuation** – The signal attenuation reported by the endpoint, in dB. Generally, the larger the number, the longer the loop. **Up Margin** – The margin detected by the line card, in dB. The larger the number, the higher the link's tolerance to noise. **Up Attenuation** – The signal attenuation detected by the line card, in dB. Generally, the larger the number, the longer the loop. **Current Link Up Time** – The amount of time since the link became operational, in days, hours, minutes, and seconds. **Attainable Speeds** – The attainable DSL line speed in kbps for the downstream and upstream data paths, based on the target margin selected and the Signal to Noise Ratio calculated at startup. **Relative Capacity** – The operating speed relative to the attainable speed expressed as a percentage for the downstream and upstream data paths.	

Table 4-2. Monitoring – Physical Ports (4 of 6)

DSL Link Performance Summary Screen – Model 8385	B-B-D
Shows performance statistics for the DSL link at the physical layer. Enter a port name (dsl1–dsl24) to see current statistics. **CPE Vendor ID** – The manufacturer of the endpoint. **Down Margin** – The margin reported by the endpoint, in dB. The larger the number, the higher the link's tolerance to noise. **Down Attenuation** – The signal attenuation reported by the endpoint, in dB. Generally, the larger the number, the longer the loop. **Up Margin** – The margin detected by the line card, in dB. The larger the number, the higher the link's tolerance to noise. **Up Attenuation** – The signal attenuation detected by the line card, in dB. Generally, the larger the number, the longer the loop. **Operating Speed** – The DSL line speed in kbps for the downstream and upstream data paths. **Attainable Speed** – The attainable DSL line speed in kbps for the downstream and upstream data paths, based on the target margin selected and the Signal to Noise Ratio calculated at startup. **Current Link Up Time** – The amount of time since the link became operational, in days, hours, minutes, and seconds. **Card Up Time** – The amount of time since the line card was last reset, in days, hours, minutes, and seconds. **Relative Capacity** – The operating speed relative to the attainable speed expressed as a percentage for the downstream and upstream data paths. **Number of Repeaters in Loop** – The sum of the number of repeaters in the loop (1– 8).	

Table 4-2. Monitoring – Physical Ports (5 of 6)

DSL Error Stats Screen – Model 8355	B-B-F
Displays errors encountered on a selected port during the current 15-minute period, the previous 15-minute period, the previous hour, and the current day. Enter a port name (dsl1–dsl24) to see current statistics. **ATU-R/ATU-C ES** (Errored Seconds) – The number of errored seconds that have been encountered on the port. An errored second is a 1-second interval during which one or more of the following occurred: a Cyclic Redundancy Check (CRC) anomaly, one or more or Loss of Signal (LOS) defects, one or more Severely Errored Seconds (SES), or one or more Loss of Power (LOP) defects. **ATU-R/ATU-C SES** (Severely Errored Seconds) – The number of Severely Errored Seconds (SESs) that have been encountered on the port. An SES is a 1-second interval during which 18 or more CRC anomalies, one or more LOS defects, one or more Severely Errored Frame Seconds (SEFS), or one or more Loss of Power (LOP) defects have occurred. **ATU-R/ATU-C UAS** (Unavailable Seconds) – The number of 1-second intervals during which the DSL line is unavailable. The line becomes unavailable after 10 contiguous SESs or training. Once unavailable, it becomes available again after 10 contiguous seconds that include no SES after training. **ATU-R/ATU-C LOFS** (Loss Of Frame Seconds) – The number of 1-second intervals for which a LOFS condition is declared after approximately 2.5 seconds of contiguous Severely Errored Frame (SEF) defects. A Loss Of Signal (LOS) overrides it. A LOFS is cleared after approximately 10 seconds with no SEF defect. **ATU-C LOSS** (Loss of Signal Seconds) – The number of 1-second intervals during which a LOS condition has been declared on the DSL line. A LOS is declared when no response is received from the endpoint within 100 ms. The condition is cleared upon receipt of one good frame. **ATU-R Loss of Power Seconds** – A count of the endpoint LOP failures detected at the line card (ATU-C). A LOP is defined as the receipt of 4 out of 6 dying-gasp messages from the endpoint. **Current Interval Counter** – How much time has elapsed in the current 15-minute interval.	

Table 4-2. Monitoring – Physical Ports (6 of 6)

DSL Error Stats Screen – Model 8365	**B-B-F**
Displays errors encountered on a selected port during the current 15-minute period, the previous 15-minute period, the previous hour, and the current day. Enter a port name (dsl1–dsl12) to see current statistics. **dn err secs, up err secs** (Downstream and Upstream Errored Seconds) – The number of errored seconds that have been encountered on the port. An errored second is a 1-second interval during which one or more of the following occurred: a Cyclic Redundancy Check (CRC) error; Loss of Signal (LOS); Severely Errored Frame (SEF); or Loss of Power (LOP). **dn svr err sec, up svr err secs** (Downstream and Upstream Severely Errored Seconds) – The number of Severely Errored Seconds (SESs) that have been encountered on the port. An SES is a 1-second interval during which 18 or more of the following occurred: a CRC error; LOS; SEF; or LOP. **dn unavail sec, up unavail sec** (Upstream and Downstream Unavailable Seconds) – The number of 1-second intervals during which the DSL line is unavailable. The line becomes unavailable after 10 contiguous SESs. Once unavailable, it becomes available again after 10 contiguous seconds that include no SES. **Link Down Count** – The number of times the link has gone down. **SN loss of power** – The number of LOPs reported. LOP is declared upon receipt of four “dying gasp” messages from the remote unit. **Current Interval Counter** – How much time has elapsed in the current 15-minute interval.	
DSL Error Stats Screen – Model 8385	**B-B-F**
Displays errors encountered on a selected port during the current 15-minute period, the previous 15-minute period, the previous hour, and the current day. Enter a port name (dsl1–dsl24) to see current statistics. **dn err secs, up err secs** (Downstream and Upstream Errored Seconds) – The number of errored seconds that have been encountered on the port. An errored second is a 1-second interval during which one or more of the following occurred: a Cyclic Redundancy Check (CRC) error or Loss of Sync Word (LOSW). **dn svr err sec, up svr err secs** (Downstream and Upstream Severely Errored Seconds) – The number of Severely Errored Seconds (SESs) that have been encountered on the port. An SES is a 1-second interval during which 50 or more CRC errors or one or more LOSW defects occurred. **dn unavail sec, up unavail sec** (Upstream and Downstream Unavailable Seconds) – The number of 1-second intervals during which the DSL line is unavailable. The line becomes unavailable after 10 contiguous SESs. Once unavailable, it becomes available again after 10 contiguous seconds that include no SES. **dn CRC Anomalies, up CRC Anomalies** (Downstream and Upstream CRC Anomalies) – The number of CRC anomalies that have occurred during the accumulation period. **dn LOSW sec, up LOSW sec** (Downstream and Upstream Loss of Sync Word Seconds) – The number of 1-second intervals during which one or more LOSW defects are declared during the accumulation period. **Link Down Count** – The number of times the link has gone down. **Current Interval Counter** – How much time has elapsed in the current 15-minute interval.	

Monitoring ATM Activity

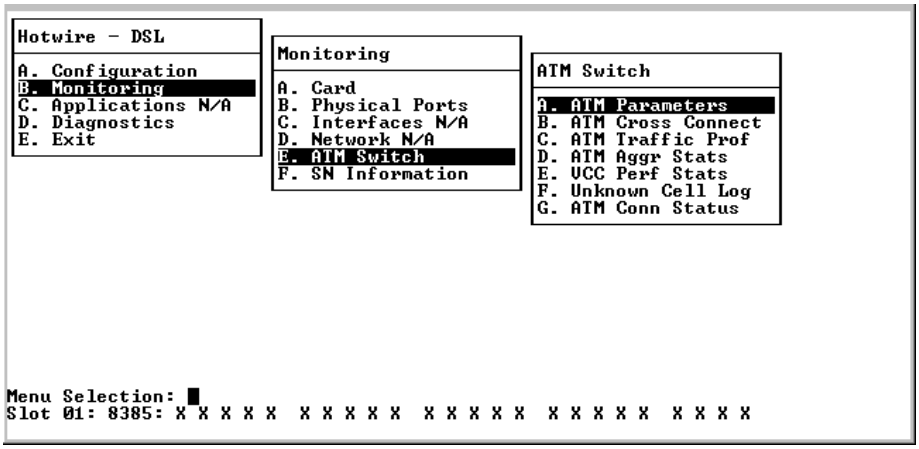
Use the ATM Switch screens to display read-only system information about ATM parameters, cross connections, and activity.

▶ Procedure

To view the ATM Switch menu:

1. Follow this menu selection sequence:

   Monitoring→*ATM Switch* (**B-E**)



2. The ATM Switch menu appears. Select the submenu option as shown in Table 4-3, Monitoring – ATM Switch, and press Enter.

Table 4-3. Monitoring – ATM Switch (1 of 7)

ATM Parameters Screen – Models 8335, 8365, and 8385	**B-E-A**
Displays parameters selected for ATM. **rt-VBR and nrt-VBR CAC Percent Bandwidth Utilization** – The values represent the amount of oversubscription the Connection Admission Control algorithm allows for the class of service. **Uncorrected HEC Count** – If the number of HEC errors (0 to 1000) exceeds the selected number within a 15-minute period, an SNMP trap is sent. If Uncorrected HEC Count is set to Disable, no trap is ever sent. **OCD Event Count** – If the number of OCD errors exceeds the selected number within a 15-minute period, an SNMP trap is sent. If OCD Event Count is set to Disable, no trap is ever sent.	
ATM Parameters Screen – Model 8355	**B-E-A**
Displays parameters selected for ATM. **Uncorrected HEC Count** – If the number of HEC errors (0 to 1000) exceeds the selected number within a 15-minute period, an SNMP trap is sent. If Uncorrected HEC Count is set to Disable, no trap is ever sent.	

Table 4-3. Monitoring – ATM Switch (2 of 7)

ATM Cross Connect Screen – Models 8335 and 8385	**B-E-B**
Displays ATM cross connections. **VPI** – The VPI of this connection. **VCI** – The VCI of this connection. **Profile Name** – The traffic profile used for this connection. **Status** – The status of this connection. It is one of: ■ **Up** – The VPI/VCI connection is operational. ■ **Down** – The VPI/VCI connection is not operational. **CSN** – The Connection Serial Number associated with this connection, for example 02S06:000, where 02 is the slot number, S is the type of connection (Standard or Custom), 06 is the card port number, and 000 is a sequence number generated by the system. **Total Connections for this Interface** – The number of connections defined to the ATM uplink for this interface. **Available Connections** – Shows how many more connections may be defined on this line card (maximum 250 per card).	
ATM Cross Connect Screen – Model 8355	**B-E-B**
Displays ATM cross connections. **VPI** – The VPI of this connection. **VCI** – The VCI of this connection. **Tx Profile** – The downstream traffic profile used for this connection. **Rx Profile** – The upstream traffic profile used for this connection. **Status** – The status of this connection. It is one of: ■ **Up** – The VPI/VCI connection is operational. ■ **Down** – The VPI/VCI connection is not operational. **Seg Endpt** – Defines whether the connection will act as a segment endpoint for ATM OAM loopbacks as defined in ITU I.610. **CSN** – The Connection Serial Number associated with this connection, for example 02S06:000, where 02 is the slot number, S is the type of connection (Standard or Custom), 06 is the card port number, and 000 is a sequence number generated by the system. **Total Connections For This Interface** – The number of connections defined to the ATM uplink for this interface. **Available Connections** – Shows how many more connections may be defined on this line card (maximum 64 per card).	

Table 4-3. Monitoring – ATM Switch (3 of 7)

ATM Cross Connect Screen – Model 8365	**B-E-B**

Displays ATM cross connections.

VPI – The VPI of this connection.

VCI – The VCI of this connection.

Dnstream Profile – The downstream traffic profile used for this connection.

Upstream Profile – The upstream traffic profile used for this connection.

Status – The status of this connection. It is one of:

- **Up** – The VPI/VCI connection is operational.
- **Down** – The VPI/VCI connection is not operational.

CSN – The Connection Serial Number associated with this connection, for example 02S06:000, where 02 is the slot number, S is the type of connection (Standard or Custom), 06 is the card port number, and 000 is a sequence number generated by the system.

Total Connections For This Interface – The number of connections defined to the ATM uplink for this interface.

Available Connections – Shows how many more connections may be defined on this line card (maximum 250 per card).

Table 4-3. Monitoring – ATM Switch (4 of 7)

ATM Traffic Profiles Screen – Models 8335, 8365, and 8385	B-E-C

Displays the characteristics of the default and custom ATM traffic profiles. To scroll to the previous or next group of profiles, type u (for Up) or d (for Down) in the Index field. Enter 0 to add a new profile. See *Configuring ATM Traffic Profiles* in Chapter 3, *Configuration* for more information if you are adding a new traffic profile.

Profile Name – The default name or name specified for a traffic profile. Enter a space to delete an existing entry.

Class – Displays the class of service for the profile. It is one of:

- **CBR** – Constant Bit Rate.
- **rt-VBR** – Real-time Variable Bit Rate.
- **nrt-VBR** – Non-real-time Variable Bit Rate.
- **UBR** – Unspecified Bit Rate.

PD – Shows by Y for Yes or N for No whether the profile supports Early Packet Discard and Partial Packet Discard.

POL – Displays the policing mode. It is one of:

- **N** – None. All cells are forwarded to the SCM.
- **T** – Tag. All cells are forwarded to the SCM, but nonconforming cells (cells which do not comply with the traffic contract) have their Cell Loss Priority bits set to 1.
- **D** – Drop. Nonconforming cells are dropped.

PCR – Displays the Peak Cell Rate. This field is not editable when Class is set to UBR.

CDVT – Displays the Cell Delay Variation Tolerance, in tenths of microseconds. This field is not editable when Class is set to UBR.

SCR – Displays the Sustained Cell Rate. This field is not editable when Class is set to UBR.

MBS – Displays the Maximum Burst Size. This field is not editable when Class is set to UBR.

Total Profiles – Displays how many profiles have been defined (used to determine the range of indexes available for display).

See Table 3-2, Conversion Guidelines in Chapter 3, *Configuration,* for information about converting cells per second to kbps.

Table 4-3. Monitoring – ATM Switch (5 of 7)

ATM Traffic Profiles Screen – Model 8355	B-E-C

Displays the characteristics of the default and custom ATM traffic profiles. To scroll to the previous or next group of profiles, type u (for Up) or d (for Down) in the Index field. Enter 0 to add a new profile. See *Configuring ATM Traffic Profiles* in Chapter 3, *Configuration* for more information if you are adding a new traffic profile.

Profile Name – The default name or name specified for a traffic profile. Enter a space to delete an existing entry.

Class – Displays the class of service for the profile:

- **UBR** – Unspecified Bit Rate.

PD – Shows Y for Yes or N for No whether the profile supports Early Packet Discard and Partial Packet Discard.

Total Profiles – Displays how many profiles have been defined (used to determine the range of indexes available for display).

See Table 3-2, Conversion Guidelines in Chapter 3, *Configuration,* for information about converting cells per second to kbps.

Table 4-3. Monitoring – ATM Switch (6 of 7)

ATM Aggregate Statistics Screen	**B-E-D**
Displays statistics for the selected interface. **Interface Name** – Select the name of the interface (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8355 and the Model 8385). **Total Cells Received** – Total number of ATM cells received from the endpoint. **Total Rx Cells Dropped** – Total number of ATM cells received by the line card that were dropped due to policing or congestion. **Total Cells Sent** – Total number of ATM cells sent to the endpoint. **Total TX Cells Dropped** – Total number of ATM cells that would have been sent to the endpoint that were dropped due to congestion. **Corrected HEC** – Number of cells from the customer premises equipment whose headers were corrected by the line card (Model 8335 only). **Uncorrected HEC** – Number of cells from the customer premises equipment whose headers contained multiple errors and were dropped. **OCD Events** – Number of Out of Cell Delineation events on the link from the customer premises equipment. **Unknown Cells** – Number of cells with an unknown VPI and VCI.	
VCC Performance Statistics Screen	**B-E-E**
Displays statistics for the selected Virtual Channel Connection (VCC). **Interface Name** – Select the name of the interface (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8355 and the Model 8385). **VPI** – Virtual Path Identifier of the VCC. **VCI** – Virtual Channel Identifier of the VCC. **Class** – Class of service for this VCC: CBR, rt-VBR, nrt-VBR, or UBR. **Total Cells Received** – Total number of ATM cells received from the endpoint. **Total Rx Cells Dropped** – Total number of ATM cells received by the line card that were dropped due to policing or congestion. **Total Cells Sent** – Total number of ATM cells sent to the endpoint. **Total TX Cells Dropped** – Total number of ATM cells that would have been sent to the endpoint or SCM that were dropped due to congestion. **Corrected HEC** – Number of cells received whose headers were corrected by the line card (Model 8335 only). **Uncorrected HEC** – Number of cells received whose headers contained multiple errors and were dropped. **OCD Events** – Number of Out of Cell Delineation events on the connection. **Unknown Cells** – Number of cells with an unknown VPI and VCI.	

Table 4-3. Monitoring – ATM Switch (7 of 7)

Unknown Cell Log Screen	**B-E-F**
Displays records for up to 100 unknown cell events. Select an interface to position the list of events, or select an **Action**: ■ N to return to Interface Name field, ■ C to clear the entire unknown cell log (clears the log for all interfaces), ■ U to scroll up one page towards newer entries, or ■ D to scroll down one page towards older entries. **Interface Name** – Select the name of the interface (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8355 and the Model 8385). **VPI** – Virtual Path Identifier of the cell. **VCI** – Virtual Channel Identifier of the cell. **Time** – Month, day, and time the unknown cell was received.	
ATM Connection Status Screen	**B-E-G**
One or two connections' statistics can been monitored (VC1/VC2), which are defined by their Interface/VPI/VCIs. Either connection can be for a DSL interface or for the WAN interface to the SCM card. To view the entire data path flow through to the line card, you must configure the VC1 connection to be a DSL interface. Then, enter wan1:1 for the VC2 connection. VC1 will show data being received from and sent to the endpoint, while VC2 will show data being sent to/from the SCM card. NOTE: For the DSL interface, cells are "sent" downstream from the line card to the endpoint. For the WAN interface, cells are "sent" from the ATM bus to the SCM card. **Interface Name** – Select the name of the DSL interface (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8355 and the Model 8385), or enter wan1:1 for the WAN interface (ATM bus to the SCM card). **VPI** – Enter the VPI of the connection you wish to display, from **0** to **15**. For the DSL interface, the VPI is the external value that is also set in the endpoint. For the WAN interface, VPI is the internal value for the internal connection between the line card and the SCM card. **VCI** – Enter the VCI of the connection you wish to display, from **32** to **255**. For the DSL interface, the VCI is the external value that is also set in the endpoint. For the WAN interface, VCI is the internal value for the internal connection between the line card and the SCM card. **Current Interval Counter** – Displays the amount of time that has elapsed in the current 15-minute interval.	

Monitoring SN Information

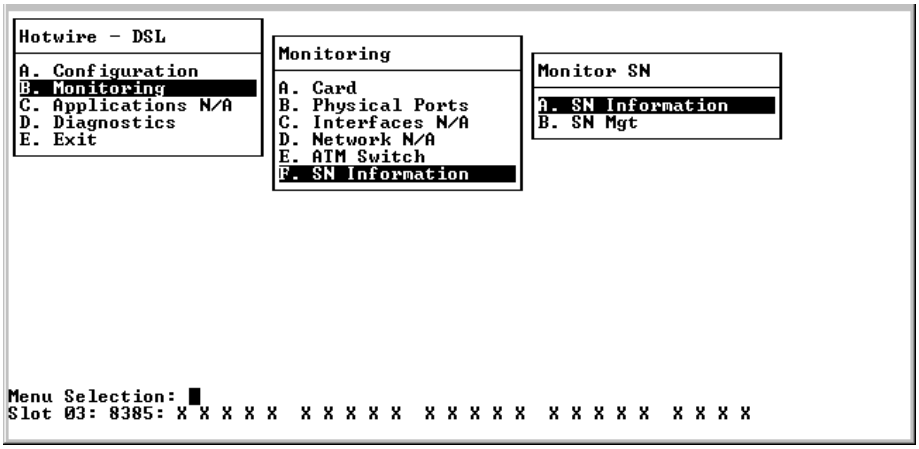
Use the SN Information screens to display read-only system information about Service Node.

▶ Procedure

To view SN information:

1. Follow this menu selection sequence:

   Monitoring→*SN Information* (**B-F**)



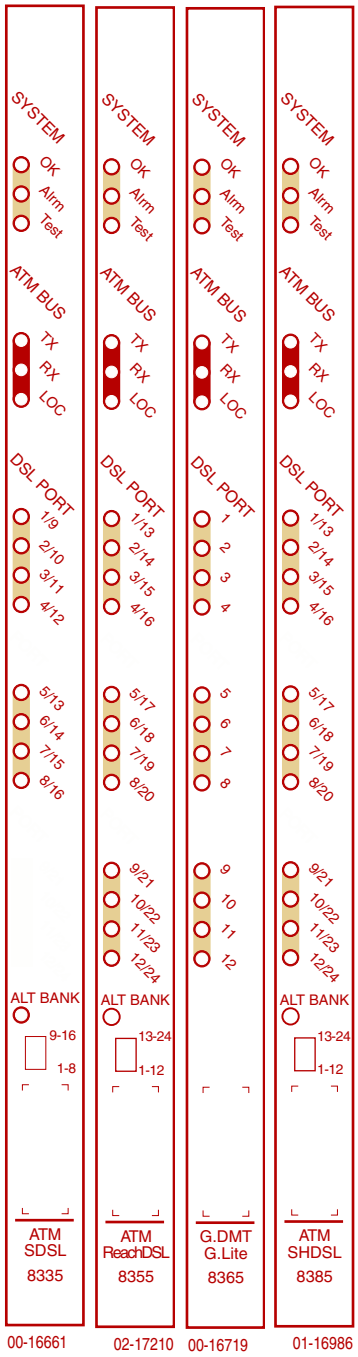
2. The Monitor SN menu appears. Select the submenu option as shown in Table 4-4, Monitoring – SN Information, and press Enter.

Table 4-4. Monitoring – SN Information

SN Information Screen	**B-F-A**
Displays parameters selected for the SN as retrieved from the Paradyne Enterprise MIB and the endpoint. If the information cannot be obtained from the endpoint, the field displays **N/A**. **Interface Name** – Select the name of the interface (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8385). **Name** – Name assigned to the endpoint. **Contact** – Name or number of the person responsible for the endpoint (Models 8335, 8365, and 8385 only). **Location** – Physical location of the system (Models 8335, 8365, and 8385 only). **Circuit ID** – Location of the circuit (Models 8335, 8365, and 8385 only). **Model Number** – Model number of the endpoint (Models 8335 and 8385 only). **Serial Number** – Serial number of the endpoint (Models 8335, 8355, and 8385 only). **Firmware Rev** – Version of firmware. **Vendor ID** – The 4-character vendor ID of the SN (Models 8355, 8365, and 8385 only). **ITU Standard Rev** – Populated by the ITU standard revision number of G.994.1 (Model 8385 only).	
Service Node Management Screen (Models 8335 and 8385 Only	**B-F-B**
For Models 8335 and 8385, displays the SN management connection. To scroll to the previous or next group of profiles, type U (for Up) or D (for Down) in the Index field. NOTE: Data is routed from the MCP card through the line card to the endpoint. Each DSL link to the endpoint can run at speeds greater than that of the management bus between the MCP card and the line card, possibly overloading the management bus very quickly. Therefore, it is recommended that only one file transfer be in process at a time. **Interface** – The name of the interface (dsl1:1 through dsl16:1 on the Model 8335 or dsl1:1 through dsl24:1 on the Model 8385). **IP Address** – The IP Address that the DSL provider will use to manage the endpoint through power resets. **Subnet Mask** – The subnet mask that the DSL provider will use to manage the endpoint. **VPI** – The VPI of the connection. **VCI** – The VCI of the connection.	

Front Panel LEDs

The following table describes the meaning and states of the LEDs on the front panel.



Type	LED	LED is . . . *	Indicating . . .
SYSTEM	OK	Green, On	Card failure. System processing functions have stopped.
		Off	No power to card.
		Green, Pulsing	Card functioning normally.
		Green, Fast Blinking	Firmware download needed.
	Alrm	Amber, On	Alarm is present on the card. ATM interface is not being detected.
		Off	Normal operation, no alarms.
	Test	Amber, On	Test in progress.
		Off	Normal operation, no tests.
		Amber, Fast Blinking	Self-test is in progress.
ATM BUS	TX	Off	Inactive.
		Green, Fast Blinking	Cells are being transmitted.
	RX	Off	Inactive, link down.
		Green, Fast Blinking	Cells are being received.
	LOC	Amber, On	Loss Of Clock. ATM bus clock signal is not present.
		Off	Normal operation.
DSL PORT		Green, On	Good signal, unit is trained.
8335	1/9–8/16	Off	Port is disabled.
8365	1–12	Green, Slow Blinking	Port is in test, or is down.
8355/8385	1/13–12/24	Green, Fast Blinking	Port is training.
ALT BANK		Off	The ports not currently displayed by the port status LEDs are functioning normally or are disabled.
8335	9–16 1–8		
8355/8385	13–24 1–12	Amber, Fast Blinking	One of the ports not currently being displayed by the port status LEDs is down, in test, or in training mode.

* Pulsing: LED turns off momentarily once per second.
Slow Blinking: LED turns on momentarily once per second.
Fast Blinking: LED turns off and on in equal duration 4 times per second.

Diagnostics

5

Overview

The Hotwire ATM Line Card provides the following diagnostic tools:

- *Self-Test* on page 5-2
  - — Tests the hardware components of the card, the results of which can be displayed on the Selftest screen.
- *Alarms* on page 5-4
  - — Displays the alarm conditions that have been detected.
- *ATM Ping* on page 5-11
  - — Sends OAM F5 loopback cells to the remote end of the ATM virtual circuit. A summary of all active ping tests is also available.
- *Loopback Test (Model 8385 Only)* on page 5-15
  - — Performs Loopback test on the SHDSL span of the network for Model 8385 cards.

Self-Test

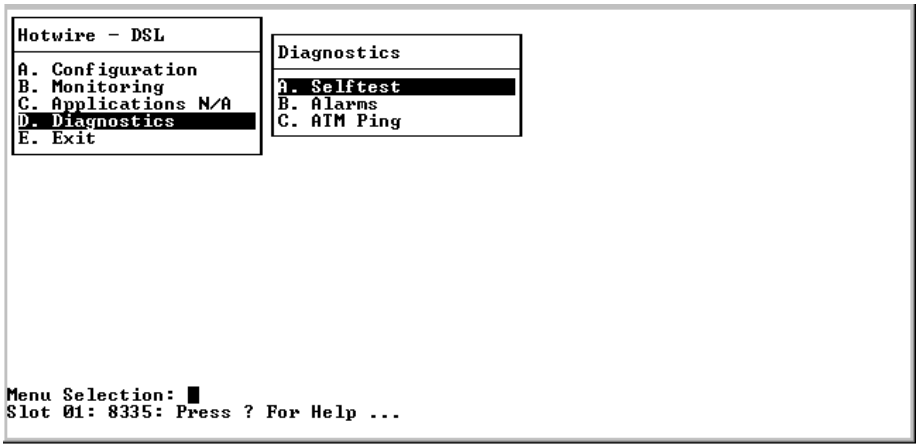
Use the Selftest screen to view the results of the last self-test performed when the card was powered on or reset.

▶ Procedure

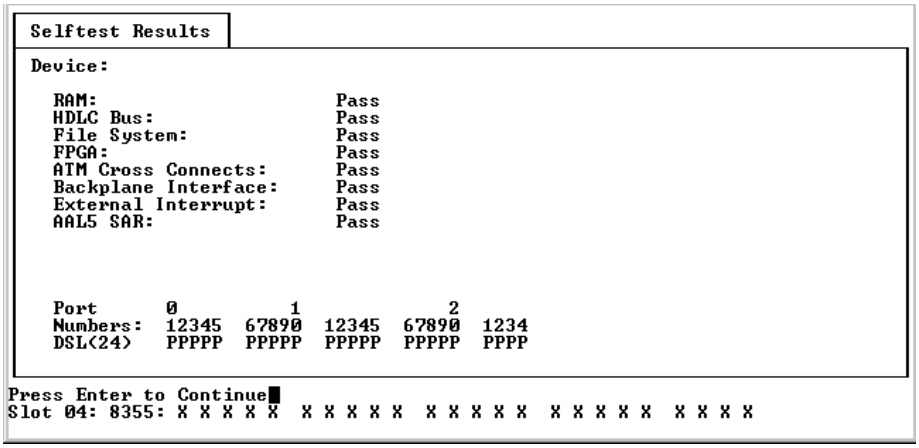
To view the results of the last self-test:

1. Follow this menu selection sequence:

   Diagnostics→*Selftest* (**D-A**)



   The Selftest screen appears.



2. Interpret the display as shown in Table 5-1, Monitoring – Selftest.

Table 5-1. Monitoring – Selftest

Selftest Screen	D-A

Alarms

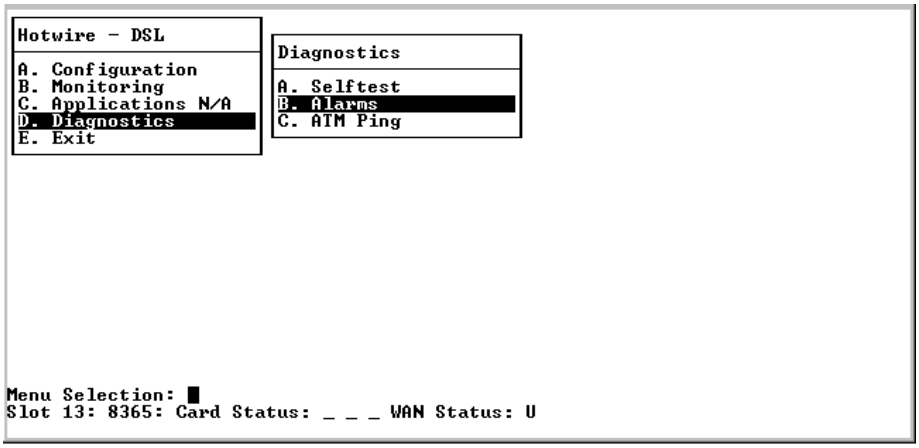
Use the Card Alarms screen to determine if any alarm conditions have been detected.

▶ Procedure

To view the alarms:

1. Follow this menu selection sequence:

   Diagnostics→*Alarms* (**D-B**)



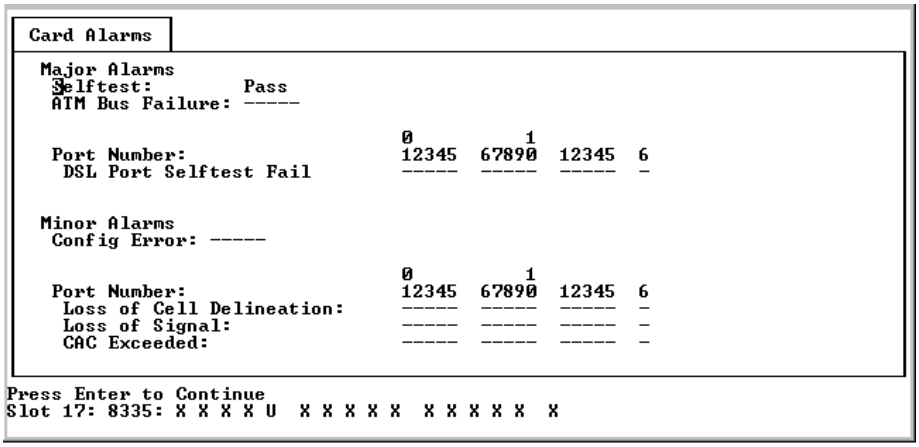
   The Card Alarms screen appears.

2. Interpret the display as shown in Table 5-2, Monitoring – Card Alarms.

Table 5-2. Monitoring – Card Alarms (1 of 6)

Card Alarms Screen – Model 8335	**D-B**

Displays alarms for the card and port levels. Columns on this screen represent port numbers (01–16).



Major Alarms:

Selftest – Shown as Pass or Fail.

ATM Bus Failure – If ALARM appears on this line, there has been a Loss Of Clock (LOC) because the line card is unable to communicate with the SCM. This could be because the chassis does not support the ATM bus (the chassis is not an 8620 or 8820 GranDSLAM), or the SCM card has been removed from the chassis.

DSL Port Selftest Fail – DSL port self-test results. A result code is shown for each port: P for Pass or F for Fail.

Minor Alarms:

Config Error – If ALARM appears on this line, the card has detected a checksum error in the memory where the configuration is stored.

Loss of Cell Delineation – If a loss of cell delineation has been detected on the port, an A (for Alarm) appears in the column for that port.

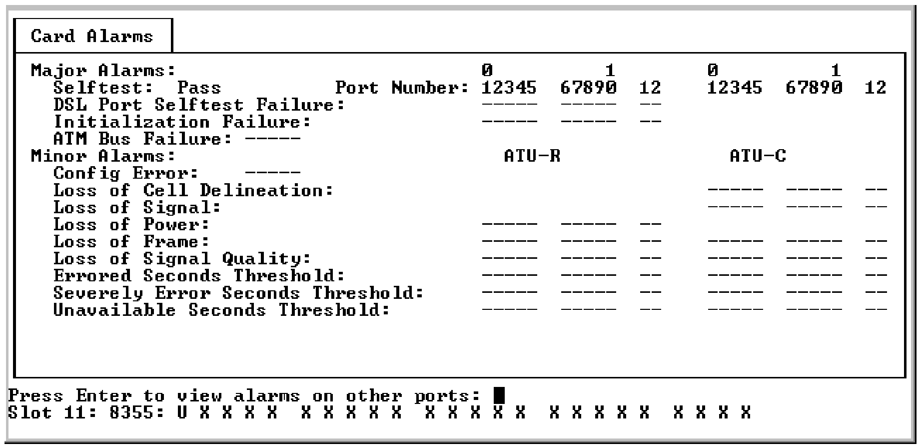
Loss of Signal – If a loss of signal has been detected on the port, an A (for Alarm) appears in the column for that port.

CAC Exceeded – The DSL line rate has dropped below the traffic contract. The traffic contract has exceeded the available bandwidth making the contract invalid.

Table 5-2. Monitoring – Card Alarms (2 of 6)

Card Alarms Screen – Model 8355	**D-B**

Displays alarms for the card and port levels. Columns on this screen represent port numbers (01–24). If Next appears, press Enter to display the next 12 ports (13–24); if Previous appears, press Enter to display previous page of ports (01–12).



Major Alarms:

Selftest – Shown as Pass or Fail.

DSL Port Selftest Failure – DSL port self-test results. A result code is shown for each port: P for Pass or F for Fail.

Initialization Failure – The DSL link has failed to initialize due to one of the following:

- Data Init Failure – No ACK is received form sending configuration information to the peer ATU.
- Configuration Init Failure – The peer ATU cannot support the configuration.
- Protocol Init Failure – The peer ATU is incompatible.

ATM Bus Failure – If ALARM appears on this line, there has been a Loss Of Clock (LOC) because the line card is unable to communicate with the SCM. This could be because the chassis does not support the ATM bus (the chassis is not an 8620 or 8820 GranDSLAM), or the SCM card has been removed from the chassis.

(Continued on next page)

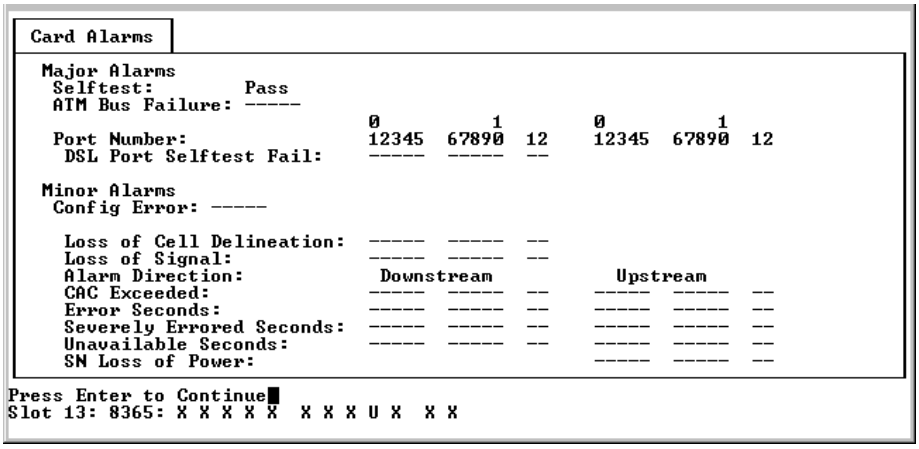
Table 5-2. Monitoring – Card Alarms (3 of 6)

Card Alarms Screen – Model 8355 ***(Continued)***	**D-B**
Minor Alarms:	
Config Error – If ALARM appears on this line, the card has detected a checksum error in the memory where the configuration is stored.	
Loss of Cell Delineation – If a loss of cell delineation has been detected on the port, an A (for Alarm) appears in the column for that port.	
Loss of Signal – If a loss of signal has been detected on the port, an A (for Alarm) appears in the column for that port.	
Loss of Power – The endpoint (ATU-R) has lost power.	
Loss of Frame – A Loss Of Frame (LOF) condition exists. A LOF is declared after approximately 2 seconds of contiguous Severely Errored Frames (SEF).	
Loss of Signal Quality – A Loss of Signal Quality (LOSQ) condition exists. A LOSQ condition exists when the noise margin falls below the minimum noise margin (0 dB) or the BER exceeds 10^{-7} for 3 seconds, or when the rate falls below the minimum configured rate for 3 seconds.	
Error Seconds Threshold –The number of Errored Seconds has exceeded the user-defined threshold.	
Severely Errored Seconds Threshold – The number of Severely Errored Seconds has exceeded the user-defined threshold.	
Unavailable Seconds Threshold – The number of Unavailable Seconds has exceeded the user-defined threshold.	
Increasing Rate Threshold – The current rate is ≥ the previous rate plus the user-defined threshold.	
Decreasing Rate Threshold – The current rate is ≤ the previous rate plus the user-defined threshold.	

Table 5-2. Monitoring – Card Alarms (4 of 6)

Card Alarms Screen – Model 8365	**D-B**

Displays alarms for the card and port levels. Columns on this screen represent port numbers (01–12).



Major Alarms:

Selftest – Shown as Pass or Fail.

ATM Bus Failure – If ALARM appears on this line, there has been a Loss Of Clock (LOC) because the line card is unable to communicate with the SCM. This could be because the chassis does not support the ATM bus (the chassis is not an 8620 or 8820 GranDSLAM), or the SCM card has been removed from the chassis.

DSL Port Selftest Fail – DSL port self-test results. A result code is shown for each port: P for Pass or F for Fail.

Minor Alarms:

Config Error – If ALARM appears on this line, the card has detected a checksum error in the memory where the configuration is stored.

Loss of Cell Delineation – If a loss of cell delineation has been detected on the port, an A (for Alarm) appears in the column for that port.

Loss of Signal – If a loss of signal has been detected on the port, an A (for Alarm) appears in the column for that port.

The following alarms are monitored in both the downstream and upstream direction except for SN Loss of Power (upstream only) and CAC Exceeded (upstream only):

Error Seconds – The number of Errored Seconds has exceeded the user-defined threshold.

Severely Errored Seconds – The number of Severely Errored Seconds has exceeded the user-defined threshold.

Unavailable Seconds – The number of Unavailable Seconds has exceeded the user-defined threshold.

SN Loss of Power – The endpoint has lost power.

Table 5-2. Monitoring – Card Alarms (5 of 6)

Card Alarms Screen – Model 8385	**D-B**

Displays alarms for the card and port levels. Columns on this screen represent port numbers (01–24). If Next appears, press Enter to display the next 12 ports (13–24); if Previous appears, press Enter to display previous page of ports (01–12).

```
Card Alarms

Major Alarms:                              0          1          0          1
  Selftest:  Fail          Port Number: 12345  67890  12   12345  67890  12
  ATM Bus Failure: -----
  DSL Port Selftest Failure:               -----  -----  --
Minor Alarms:                                Downstream           Upstream
  Config Error:    -----
  Loss of Cell Delineation:                -----  -----  --
  Loss of Signal:                          -----  -----  --
  Error Seconds:                           -----  -----  --   -----  -----  --
  Severely Errored Seconds:                -----  -----  --   -----  -----  --
  Unavailable Seconds:                     -----  -----  --   -----  -----  --
  Loss of Sync Word Second:                -----  -----  --   -----  -----  --
  CRC Anomalies Threshold:                 -----  -----  --   -----  -----  --
  SNR Margin Threshold:                    -----  -----  --   -----  -----  --
  Attenuation Threshold:                   -----  -----  --   -----  -----  --
  Repeater Segment Down :                  -----  -----  --
  SN Loss of Power:                        -----  -----  --
  CAC Exceeded:                            -----  -----  --   -----  -----  --

Press Enter to view alarms on other ports:
Slot 01: 8385: X X X X X  X X X X X  X X X X X  X X X X X  X X X X
```

Major Alarms:

Selftest – Shown as Pass or Fail.

ATM Bus Failure – If ALARM appears on this line, there has been a Loss Of Clock (LOC) because the line card is unable to communicate with the SCM. This could be because the chassis does not support the ATM bus (the chassis is not an 8620 or 8820 GranDSLAM), or the SCM card has been removed from the chassis.

DSL Port Selftest Failure – DSL port self-test results. A result code is shown for each port: P for Pass or F for Fail.

(Continued on next page)

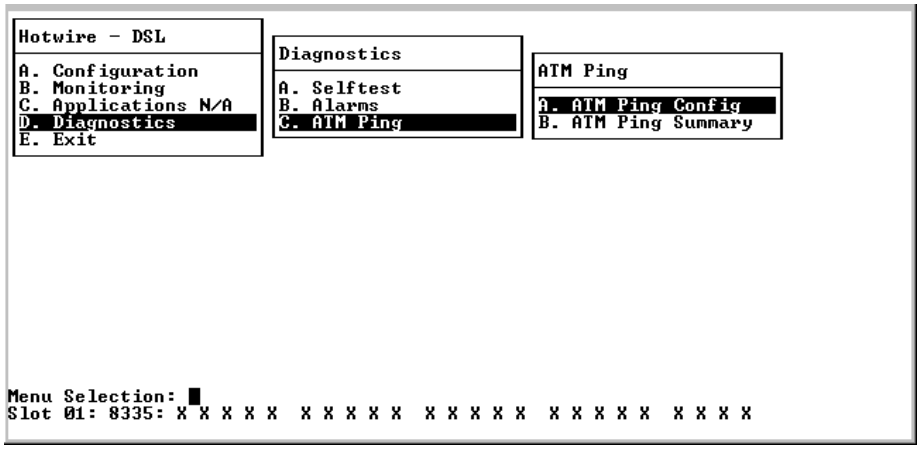
Table 5-2. Monitoring – Card Alarms (6 of 6)

Card Alarms Screen – Model 8385 *(Continued)*	**D-B**
Minor Alarms:	
Config Error – If ALARM appears on this line, the card has detected a checksum error in the memory where the configuration is stored.	
Loss of Cell Delineation – If a loss of cell delineation has been detected on the port, an A (for Alarm) appears in the column for that port.	
Loss of Signal – If a loss of signal has been detected on the port, an A (for Alarm) appears in the column for that port.	
Error Seconds –The number of Errored Seconds has exceeded the user-defined threshold.	
Severely Errored Seconds – The number of Severely Errored Seconds has exceeded the user-defined threshold.	
Unavailable Seconds – The number of Unavailable Seconds has exceeded the user-defined threshold.	
Loss of Sync Word Second – The number of Loss of Sync Word (LOSW) seconds has exceeded the user-defined threshold.	
CRC Anomalies Threshold – The number of CRC anomalies has exceeded the user-defined threshold.	
SNR Margin Threshold – The SNR margin has exceeded the user-defined threshold.	
Attenuation Threshold – The current value reached or dropped below the user-defined threshold.	
Repeater Segment Down – One of the repeater segments is down.	
SN Loss of Power – The endpoint has lost power.	
CAC Exceeded – The DSL line rate has dropped below the traffic contract. The traffic contract has exceeded the available bandwidth making the contract invalid.	

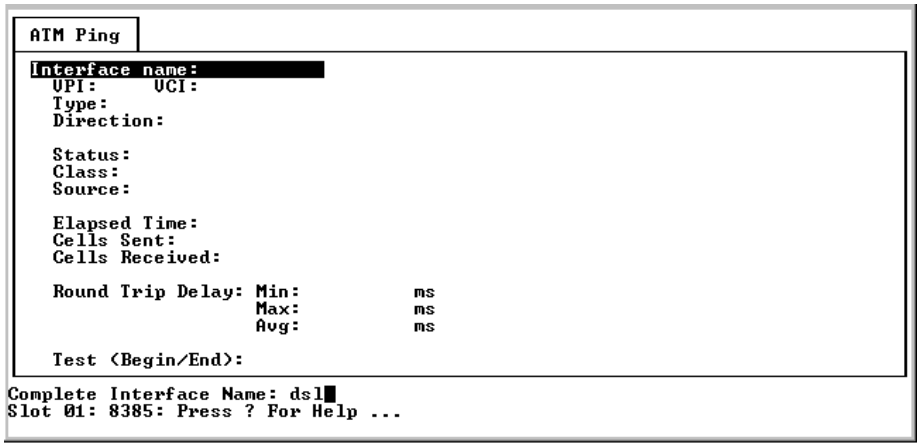
ATM Ping

Use the ATM Ping screens to verify that the virtual circuit is connected. To access the ATM Ping menu, follow this menu selection sequence:

Diagnostics→*ATM Ping*→*ATM Ping Config* (**D-C-A**)



The ATM Ping screen appears.



Use the ATM Ping screen to initiate a test to verify that the virtual circuit is connected. The card sends cells to the remote end of the virtual channel connection (the endpoint or ATM network), which returns them. The estimated round trip time is then displayed. The screen is refreshed every 15 seconds.

▶ Procedure

To test a virtual circuit:

1. Select an interface (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8385).
2. Enter a VPI and VCI for the virtual circuit you wish to test, the type of test desired (end-to-end or segment), and the test direction (towards the endpoint or towards the network).
3. Select Begin.
4. Interpret the display as shown in Table 5-3, Diagnostics – ATM Ping.

Table 5-3. Diagnostics – ATM Ping

ATM Ping Screen	D-C-A
Displays the progressive results of sending of test cells to the ATM endpoint on a selected virtual circuit. **Interface name** – Select the interface to be tested (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8385). **VPI** – Enter the VPI of the VC to be tested. **VCI** – Enter the VCI of the VC to be tested. **Type** – The type of test, either **End2End** (End-to-End F5 Loopback) or **Segment** (Segment F5 Loopback). **Direction** – Select the direction you wish to send cells to: Towards the Endpoint or Towards the Network. **Status** – Indicates whether a test is in progress (Active/Inactive). **Class** – Displays the class of service for the selected VPI/VCI. **Source** – If a ping test is in progress, displays the source of the test, either UI (from the user interface) or NMS (from the NMS). **Elapsed Time** – Displays the amount of time that has elapsed since the test began. **Cells Sent** – Displays the number of cells sent on this VC. The counter restarts after 99999999. **Cells Received** – Displays the number of cells received on this VC. The counter restarts after 99999999. **Round Trip Delay:** **Min** – Displays the shortest round trip delay (0 to 99999 ms) encountered on cells received. **Max** – Displays the longest round trip delay (0 to 99999 ms) encountered on cells received. **Avg** – Displays the average round trip delay (0 to 99999 ms) encountered on cells received.	

ATM Ping Summary

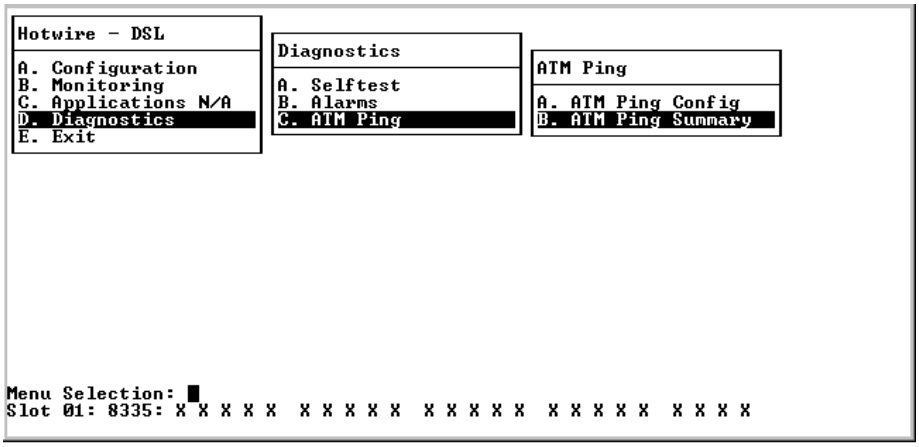
Use the ATM Ping screen to display all ping tests active on the card. The screen is refreshed every 15 seconds.

▶ Procedure

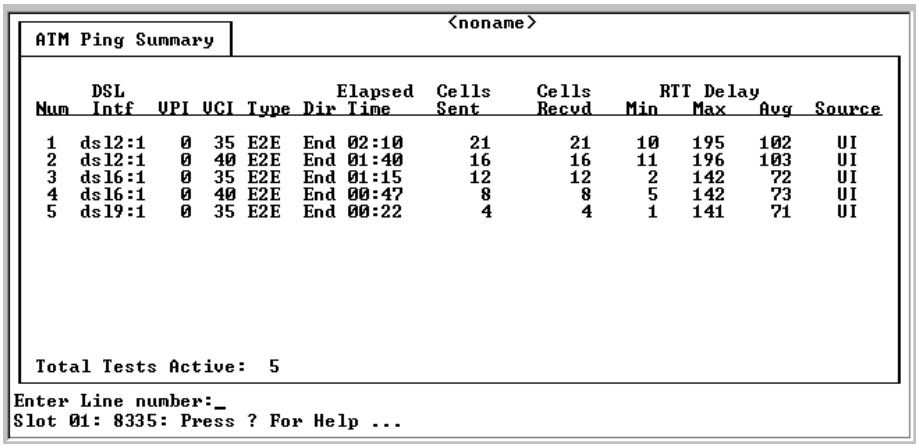
To test a virtual circuit:

1. Follow this menu selection sequence:

   Diagnostics→*ATM Ping*→*ATM Ping Summary* (**D-C-B**)



   The ATM Ping Summary screen appears if active ping(s) are running.



2. Type U (for Up) or D (for Down) in the Index field to scroll to the previous or next group of ping tests.
3. Interpret the display as shown in Table 5-4, Diagnostics – ATM Ping Summary.

Table 5-4. Diagnostics – ATM Ping Summary

ATM Ping Summary Screen	D-C-B
Displays all of the ping tests that are active on the card. **DSL Intf** – The interface being tested (dsl1:1 through dsl16:1 on the Model 8335, dsl1:1 through dsl12:1 on the Model 8365, or dsl1:1 through dsl24:1 on the Model 8385). **VPI** – The VPI of the connection being tested. **VCI** – The VCI of the connection being tested. **Type** – Displays the type of test, either E2E (End-to-End F5 Loopback) or Seg (Segment F5 Loopback). **Dir** – Direction. Specifies if the loopback cell for the VPI/VCI is defined towards the endpoint (End) or towards the network (Net). **Elapsed Time** – Displays the amount of time that has elapsed since the test began. **Cells Sent** – Displays the number of test cells sent to the endpoint. The counter restarts after 99999999. **Cells Recvd** – Displays the number of test cells received from the endpoint. The counter restarts after 99999999. **RTT Delay:** **Min** – Displays the shortest round trip delay (0 to 99999 ms) encountered on cells received. **Max** – Displays the longest round trip delay (0 to 99999 ms) encountered on cells received. **Avg** – Displays the average round trip delay (0 to 99999 ms) encountered on cells received. **Source** – Displays whether an active test was started from the user interface (UI) or NMS.	

Loopback Test (Model 8385 Only)

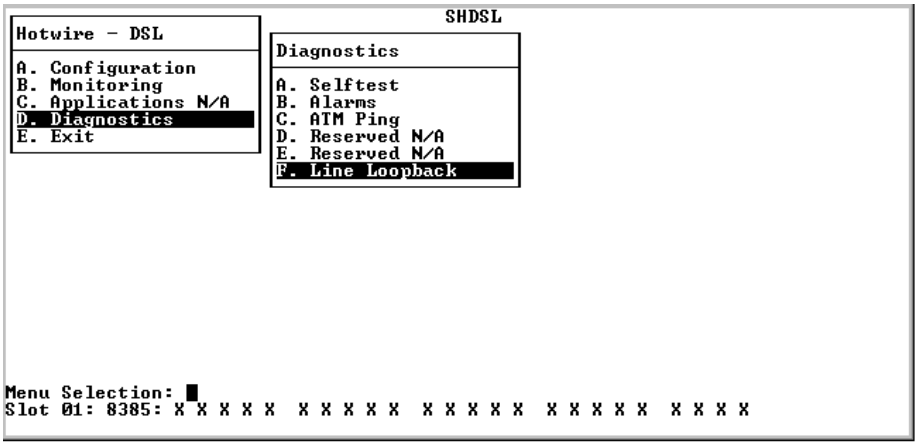
A Loopback test can be initiated from the Model 8385 ATM SHDSL Line Card to any segment of the network, customer-side repeaters, or to the SHDSL transceiver on the remote terminal site.

▶ Procedure

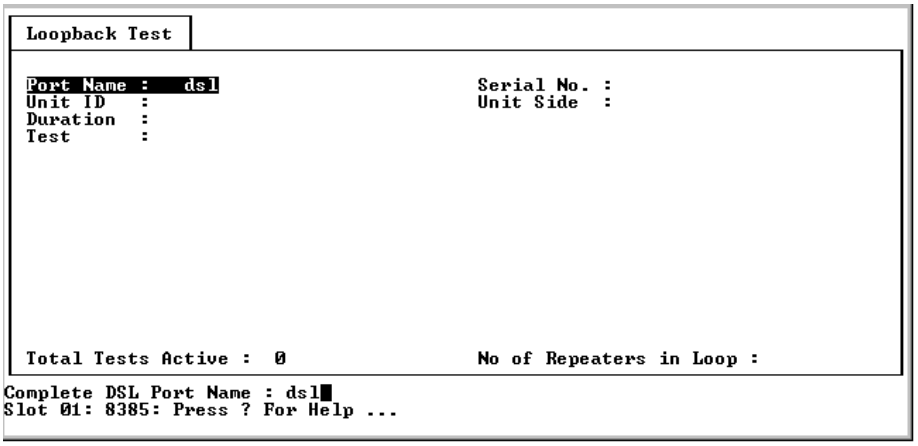
To initiate a loopback test:

1. Follow this menu selection sequence:

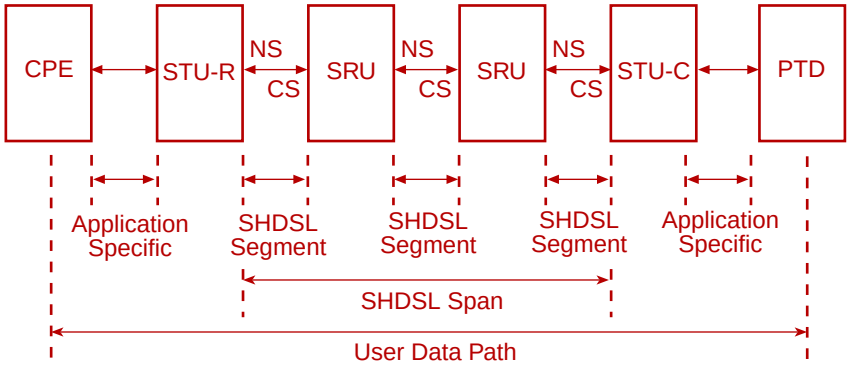
   Diagnostics→ Line Loopback (**D-F**)



The Loopback Test screen appears.



2. Select an interface (dsl1:1 through dsl24:1 on the Model 8385).
3. Enter the unit to be tested in the SHDSL network segment (STU-C, STU-R, or SRU1– SRU-8). Use the unit identifiers defined in Figure 5-1, SHDSL Data Path.
4. Enter the side of the selected unit to be tested (Customer or Network) as shown in Figure 5-1, SHDSL Data Path.
5. Enter the duration of the test (1–10 minutes).
6. Enter **Start** to start the test. A loopback begins on the selected unit in addition to a 511 BERT on the STU-C at the same time. The test continues to run until you enter Stop or the selected duration has expired.
7. Enter **Stop** if you want to end the test before the duration has expired.
8. Interpret the display as shown in Table 5-5, Diagnostics – Loopback Test.



CPE = Customer Premises Equipment
CS = Customer Side
NS = Network Side
PTD = Path Terminating Device
SRU = Signal Regeneration Units
STU-R = SHDSL Transceiver (Remote Terminal Site)
STU-C = SHDSL Transceiver (Centeral Site)

Figure 5-1. SHDSL Data Path

Table 5-5. Diagnostics – Loopback Test

Loopback Test Screen – Model 8385	**D-F**
Displays the results of a loopback test. **Port Name** – Select the name of the port to be tested (dsl1:1 through dsl24:1 on the Model 8385). **Unit ID** – Enter the unit to be tested in the SHDSL span: ■ STU-C for the central site SHDSL transceiver unit ■ STU-R for the remote site SHDSL transceiver unit ■ SRU-1 – SRU-8 for a Signal Transceiver Unit (repeater) **Serial No.** – Displays the serial number of the unit to be tested after you enter the port name and unit ID. **Unit Side** – Enter the side of the unit to be tested (Customer or Network). **Duration** – Enter the duration of the test (1–10 minutes) in 1-minute increments. **Test** – Enter Start to begin the test. Enter Stop to end the test before the duration entered has expired. **Total Tests Active** – Displays the number of tests active on the card. **No of Repeaters in Loop** – Displays the number of repeaters (SRUs) in the loop under test.	

Maintenance Procedures

6

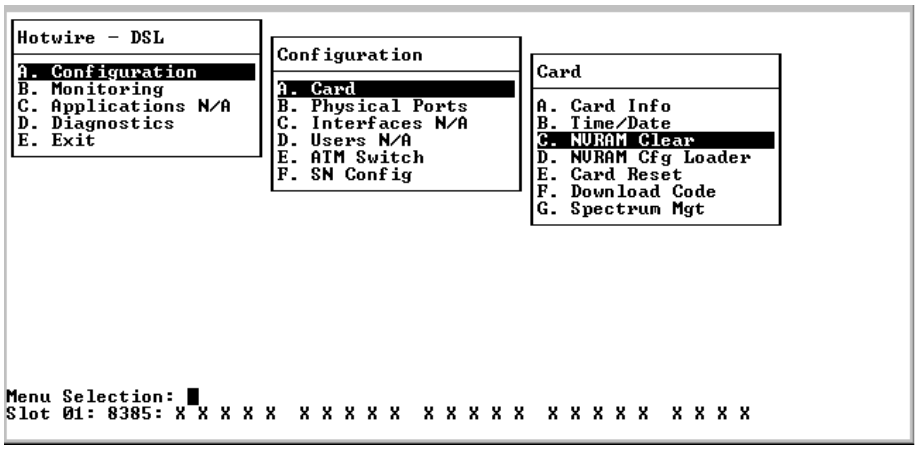
Overview

This chapter provides instructions on how to perform miscellaneous maintenance procedures. These procedures may include:

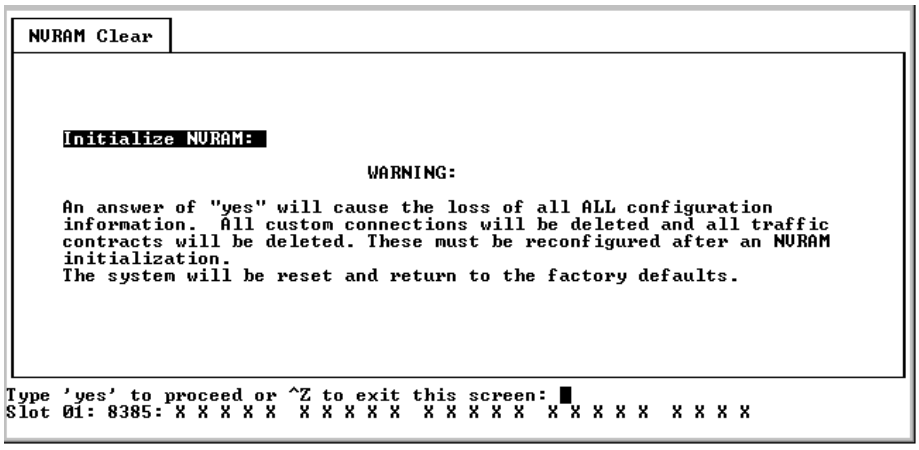
Clearing NVRAM

The NVRAM (Non-Volatile Random Access Memory) Clear screen allows you to restore default factory settings and reset the card. This disrupts any existing connections. To access the NVRAM Clear screen, follow this menu selection sequence:

Configuration→*Card*→*NVRAM Clear* (**A-A-C**)



The NVRAM Clear screen appears.



Select Yes to clear NVRAM, restore factory default configuration options, and reset the card.

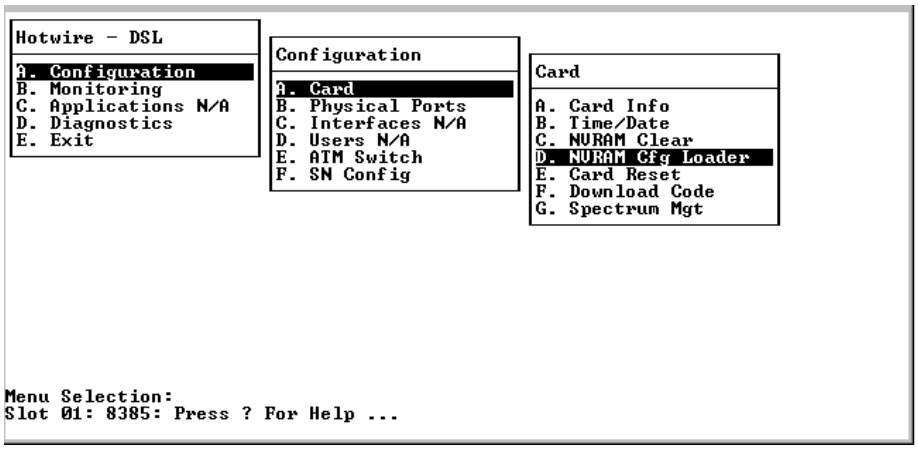
Uploading and Downloading a Configuration

Your configuration options reside in a file in memory on the line card. This file may be saved by uploading it to a TFTP server, and a configuration file may be restored by downloading it from a TFTP server.

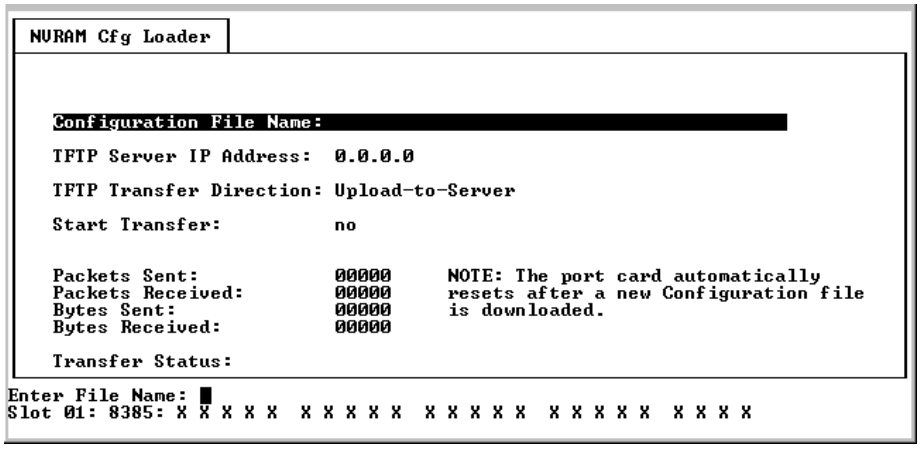
Uploading the configuration file saves it for purposes of disaster recovery and duplication to other cards. Downloading a configuration file updates all configuration options in the card.

Both procedures are performed using the Configuration Loader screen. To access the Configuration Loader screen, follow this menu selection sequence:

Configuration→*Card*→*NVRAM Cfg Loader* (**A-A-D**)



The NVRAM Cfg Loader screen appears.



Uploading a Configuration

▶ Procedure

To upload a configuration file:

1. In the Configuration File Name field, enter the pathname to be used for the file when it is written to the TFTP server.

   The file name may be a regular path name expression of directory names separated by a forward slash (/) ending with the file name (for example, **`/paradyne/83xx/chicago.cfg`**). The total path name length can be up to 128 characters. Depending on the operating system used for the TFTP server, it may be necessary to create the directories and file before uploading.

2. In the TFTP Server IP Address field, enter the IP address of the TFTP server in decimal notation, or **M1** to select the MCP card as the TFTP server.

3. In the TFTP Transfer Direction field, select Upload to Server.

4. In the Start Transfer field, select Yes.

Downloading a Configuration

▶ Procedure

To download a configuration file:

1. In the Configuration File Name field, enter the pathname to be used for the file when it is written to the TFTP server.

   The file name may be a regular path name expression of directory names separated by a forward slash (/) ending with the file name (for example, **`/paradyne/83xx/chicago.cfg`**). The total path name length can be up to 128 characters.

2. In the TFTP Server IP Address field, enter the IP address of the TFTP server in decimal notation, or **`M1`** to select the MCP card as the TFTP server.

3. In the TFTP Transfer Direction field, select Download from Server.

4. In the Start Transfer field, select Yes.

Configuration Loader Statistics

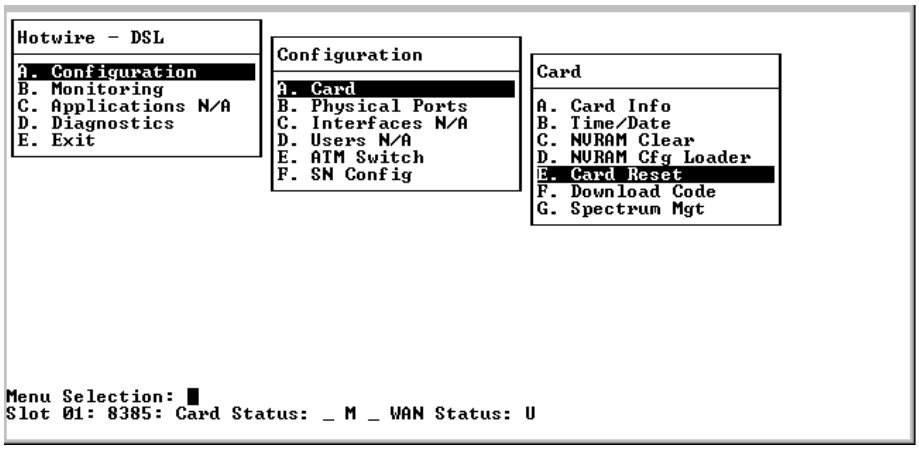
When the transfer begins, the following fields are updated.

- **Packets Sent** – The number of TFTP packets sent to the server.
- **Packets Received** – The number of TFTP packets received from the server.
- **Bytes Sent** – The number of bytes sent to the server.
- **Bytes Received** – The number of bytes received from the server.
- **Transfer Status** – The status returned by the TFTP server. See your TFTP program documentation for more information.

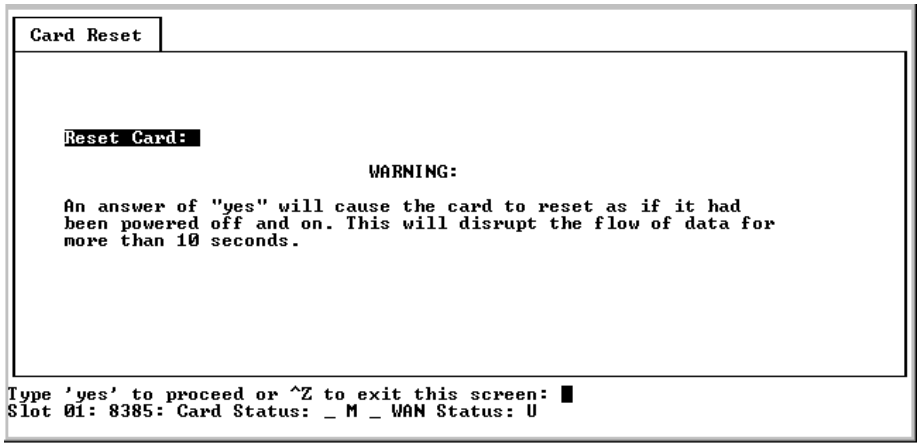
Resetting the Card

The Card Reset screen allows you to reset the card and clear its statistics. This has the same effect as if the card were pulled from the GranDSLAM then replaced, and disrupts any existing connections. A power-on self-test occurs and the card retrains with its DSL endpoint. To access the Card Reset screen, follow this menu selection sequence:

Configuration→*Card*→*Card Reset* (**A-A-E**)



The Card Reset screen appears.



Select Yes to reset the card.

Downloading Code

The Download Code screen appears.

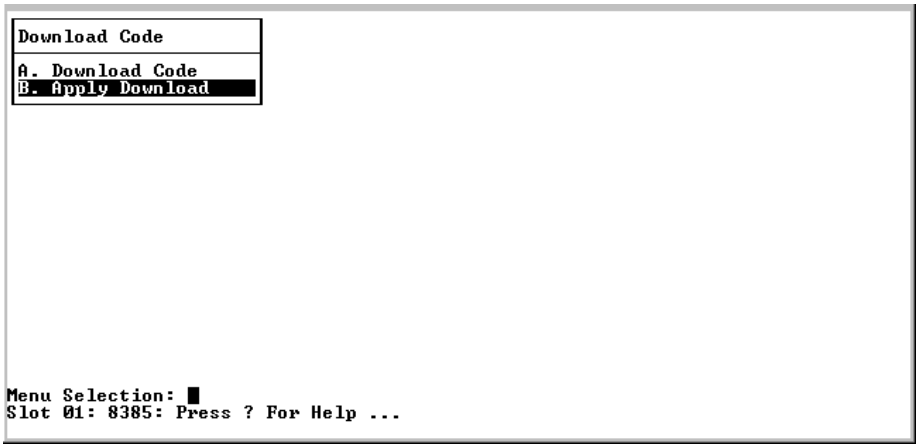
▶ Procedure

To download a new code file:

1. In the Image File Name field, enter the pathname of the image to be

4. After **`Completed successfully`** appears in the Transfer Status field, go to the Apply Download screen:

   Configuration→*Card*→*Download Code*→*Apply Download* (**A-A-F-B**)

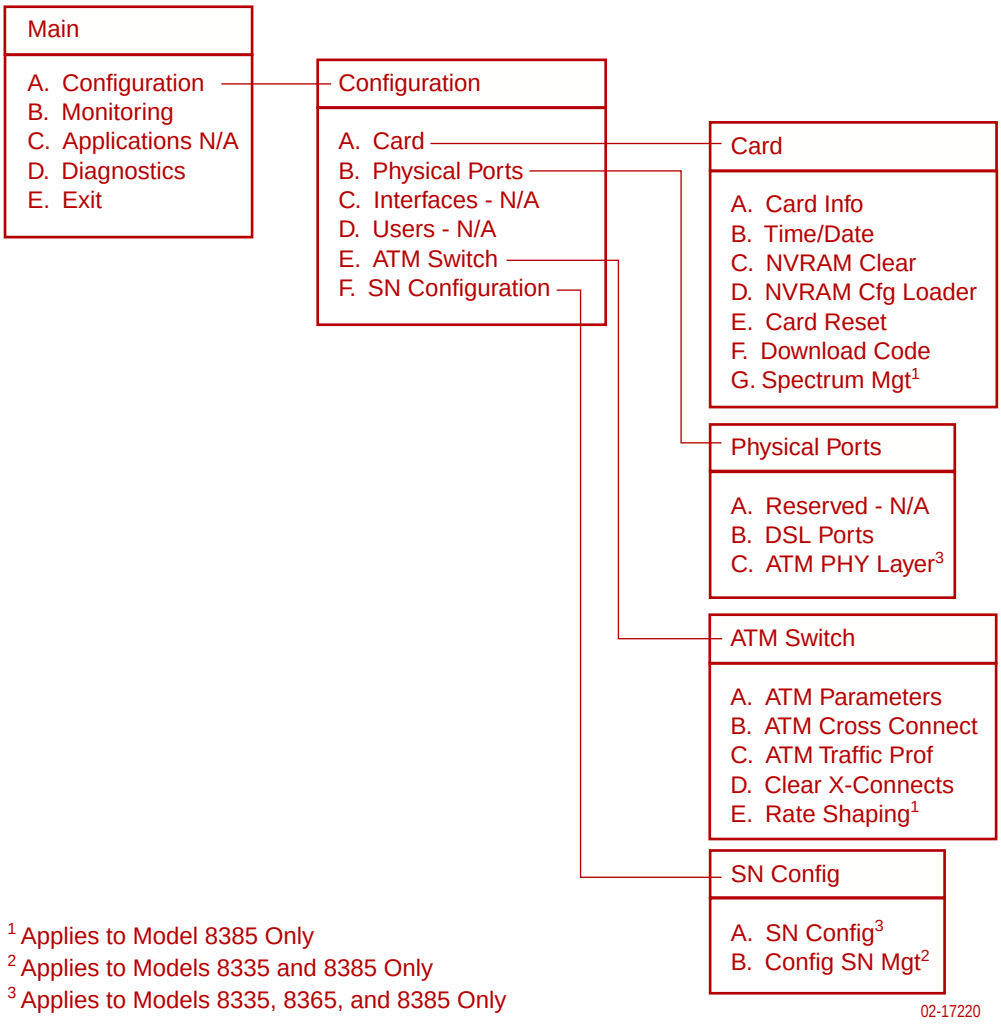


5. Select Yes to reset the unit and apply the new code image.

Menus

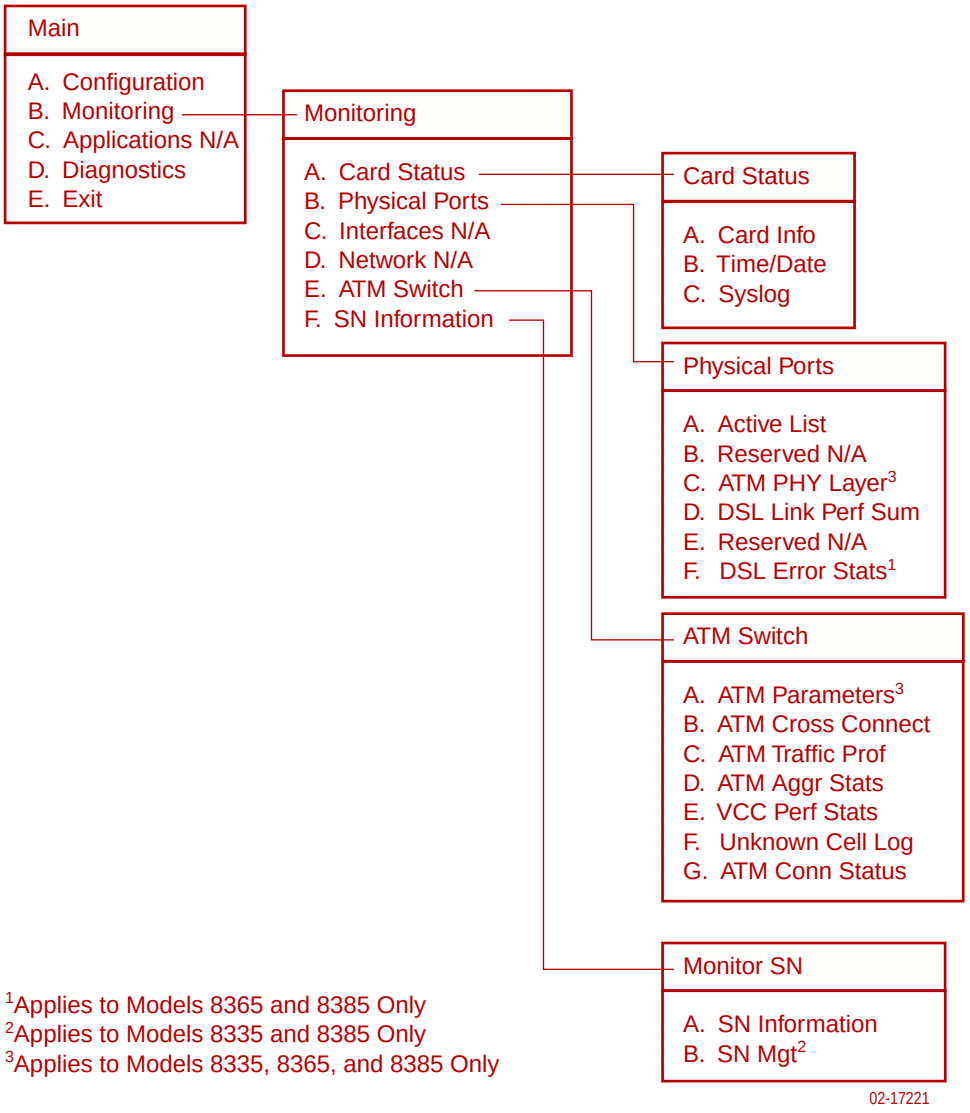
A

Configuration Menu



[1] Applies to Model 8385 Only
[2] Applies to Models 8335 and 8385 Only
[3] Applies to Models 8335, 8365, and 8385 Only

Monitoring Menu

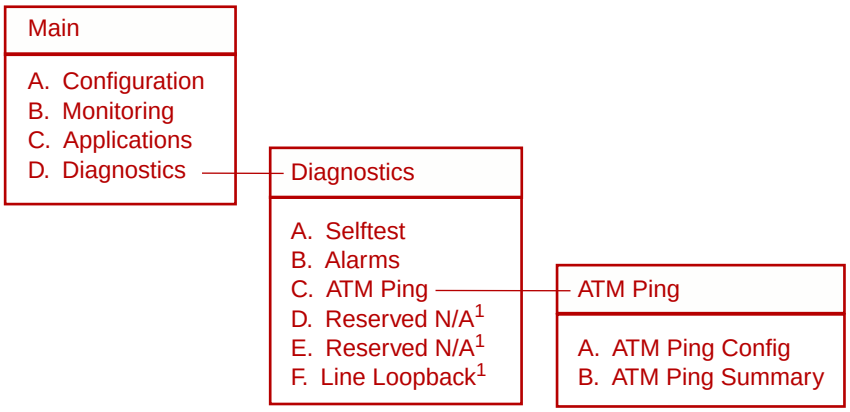


[1]Applies to Models 8365 and 8385 Only
[2]Applies to Models 8335 and 8385 Only
[3]Applies to Models 8335, 8365, and 8385 Only

Applications Menu

The Application branch is not used on this product.

Diagnostics Menu



[1]Applies to Model 8385 Only

SNMP Traps

B

Trap Managers

SNMP traps are sent to trap managers whose addresses are entered on the SNMP Communities/Traps configuration screen of the MCP. See the *Hotwire Management Communications Controller (MCC) Card, IP Conservative, User's Guide* for information about management domain configuration.

SNMP Traps

Traps are configured via a Telnet or terminal session. See the *Hotwire Management Communications Controller (MCC) Card, IP Conservative, User's Guide* for information about enabling and routing traps.

Table B-1, SNMP Traps, shows the traps supported on the Hotwire ATM Line Cards.

Table B-1. SNMP Traps (1 of 6)

Event	Description	Variable Bindings
Cold start(0)	Card has been reset and performed a cold start.	None
Warm start(1)	Power on reset.	
LinkDown(2)	One of the communication interfaces has failed.	ifIndex (RFC 2863) ifAdminStatus (RFC 2863) ifOperStatus (RFC 2863)
LinkUp(3)	One of the communication interfaces has come up.	
adslAtucPerfLofsThreshTrap	Loss of Framing 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAturPerfCurr15MinLofs adslAturThresh15MinLofs
adslAtucPerfLossThreshTrap	Loss of Signal 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAtucPerfCurr15MinLoss adslAtucThresh15MinLoss

Table B-1. SNMP Traps (2 of 6)

Event	Description	Variable Bindings
adslAtucPerfLprsThreshTrap	Loss of Power 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAturPerfCurr15MinLprs adslAturThresh15MinLprs
adslAtucPerfESsThreshTrap	Errored second 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAtucPerfCurr15MinESs adslAtucThresh15MinESs
adslAtucRateChangeTrap	The ATUC's transmit rate has changed (RADSL mode only).	ifIndex (RFC 2863) adslAtucChanCurrTxRate adslAtucChanPrevTxRate
adslAtucPerfLolsThreshTrap	Loss of Link 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAtucPerfCurr15MinLols adslAtucThresh15MinLols
adslAtucInitFailureTrap	ATUC initialization failed.	ifIndex (RFC 2863) adslAtucCurrStatus
adslAturPerfLofsThreshTrap	Loss of Framing 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAturPerfCurr15MinESs adslAturThresh15MinESs
adslAturPerfLossThreshTrap	Loss of Signal 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAturPerfCurr15MinLoss adslAturThresh15MinLoss
adslAturPerfLprsThreshTrap	Loss of Power 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAturPerfCurr15MinLprs adslAturThresh15MinLprs
adslAturPerfESsThreshTrap	Errored Second 15-minute interval threshold reached.	ifIndex (RFC 2863) adslAturPerfCurr15MinESs adslAturThresh15MinESs
adslAturRateChangeTrap	The ATUC's transmit rate has changed (RADSL mode only).	ifIndex (RFC 2863) adslAtucChanCurrTxRate adslAtucChanPrevTxRate
adslAtucfailedFastRThreshTrap	Failed Fast retrains 15-minute threshold reached.	ifIndex (RFC 2863) adslAtucPerfCurr15MinFailed FastR
adslAtucSesLThreshTrap	Severely errored seconds 15-minute threshold reached.	ifIndex (RFC 2863) adslAtucPerfCurr15MinSesL

Table B-1. SNMP Traps (3 of 6)

Event	Description	Variable Bindings
adslAtucUasLThreshTrap	Unavailable seconds 15-minute threshold reached.	ifIndex (RFC 2863) adslAtucPerfCurr15MinUasL
atmfM4IfLcdAlarm	Loss of Cell Delineation occurred on the Transmission Convergence adapter.	ifIndex ifOperStatus atmfM4TrapAlarmSeverity.
atmfM4IfLosAlarm	Loss of Signal (LOS) occurred on the physical path termination point.	
devAutoBackupFailEvent	Automated backup of a device's configuration to the MCC Flash File System (FFS) at scheduled time is prevented.	entPhysicalIndex
devConfigRestoreFailEvent	Download of an incompatible or incorrect configuration file to the MCC FFS was attempted.	entPhysicalIndex
dsx1LineStatusChange	Value of an instance dsx1LineStatus changes.	ifIndex dsx1LineStatus dsx1LineStatusChange
hdsl2ShdslLoopAttenCrossing	The loop attenuation threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurrAtn hdsl2ShdslEndpointThreshLoop Attenuation
hdsl2ShdslSnrMarginCrossing	The SNR margin threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurrSnrMgn hdsl2ShdslEndpointThreshSNR Margin
hdsl2ShdslPerfESThresh	The errored seconds threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurr15MinES hdsl2ShdslEndpointThreshES

Table B-1. SNMP Traps (4 of 6)

Event	Description	Variable Bindings
hdsl2ShdslPerfSESThresh	The severely errored seconds threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurr15MinSES hdsl2ShdslEndpointThreshSES
hdsl2ShdslPerfCRCanomalies Thresh	The CRC anomalies threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurr15MinCRC anomalies hdsl2ShdslEndpointThreshCRC anomalies
hdsl2ShdslPerfLOSWSThresh	The LOWSW seconds threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurr15Min LOSWS hdsl2ShdslEndpointThreshLOSWS
hdsl2ShdslPerfUasThresh	The unavailable seconds threshold has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurr15MinUAS hdsl2ShdslEndpointThreshUAS
hdsl2ShdslSpanInvalidNum Repeaters	A mismatch has been detected between the number of repeater/generator units configured for a HDSL2/SHDSL line and the actual number of repeater/generator units discovered via the EOC.	IfIndex hdsl2ShdslSpanConfNumRepeaters
hdsl2ShdslLoopbackFailure	An endpoint maintenance loopback command failed for an HDSL2/SHDSL segment.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslMaintLoopbackConfig

Table B-1. SNMP Traps (5 of 6)

Event	Description	Variable Bindings
hdsl2ShdslpowerBackoff	The bit setting for power backoff for this endpoint has changed.	IfIndex hdsl2ShdslInvIndex hdsl2ShdslEndpointSide hdsl2ShdslEndpointWirePair hdsl2ShdslEndpointCurrStatus
hdsl2ShdsldcContinuityFault	The bit setting for the DC continuity fault for this endpoint has changed.	
hdsl2ShdslconfigInitFailure	The bit setting for the config init failure for this endpoint has changed.	
hdsl2ShdslprotocolInitFailure	The bit setting for the protocol init failure for this endpoint has changed.	
hdsl2ShdslnoNeighborPresent	The bit setting for no neighbor present for this endpoint has changed.	
hdsl2ShdsllocalPowerLoss	Impending unit failure due to loss of local power (last gasp).	IfIndex hdsl2ShdslInvIndex
mpeSelfTestFailure	Hardware failure detected during selftest.	entPhysicalIndex mpedevSelfTestResults
mpeDevFileXferEvent	Contains information about a file transfer.	mpeDevFileXferName mpeDevFileXferType mpeDevFileXferOperation mpeDevFileXferErrorStatus mpeDevFileXferStatus
pdnAtmIfConfExtExcessInvalid CellsAlarm	The number of cells with uncorrectable HEC errors has exceeded the user-defined threshold.	IfIndex pdnAtmIfConfExtUnknownCell Threshold IfOperStatus
pdnAtmIfConfExtLineRateAlarm Set	Line rate dropped below a value which violates traffic contracts of connections.	IfIndex
pdnAtmIfConfExtLineRateAlarm Clear	Line rate has risen above a value which would no longer violate traffic contracts of connections.	IfIndex
pdnAtmIfConfExtVclNoBandwidth Avail	Traffic contracts associated with the VC cross connect cannot be satisfied by the ATM switch.	AtmVcCrossConnectIndex AtmVcCrossConnectLowIfIndex AtmVcCrossConnectLowVpi AtmVcCrossConnectLowVci AtmVcCrossConnectHighIfIndex AtmVcCrossConnectHighVpi AtmVcCrossConnectHighVci
pdnAtmIfConfExtLineRateAlarm Set	Configuration has changed so that the previously valid CAC contracts can no longer be guaranteed in the egress direction.	IfIndex

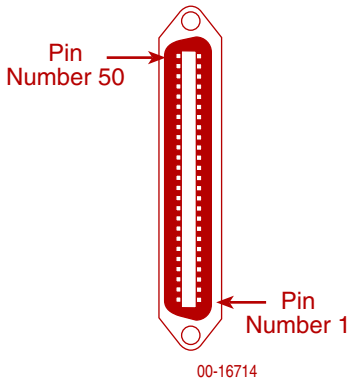
Table B-1. SNMP Traps (6 of 6)

Event	Description	Variable Bindings
pdnAtmIfConfExtLineRateAlarm Clear	Configuration has changed so that the previously invalid CAC contracts can now be guaranteed in the egress direction.	IfIndex
xdslLinkUpDown Transitions	The DSL link is in a fluctuating state.	ifIndex

Connector Pin Assignments

C

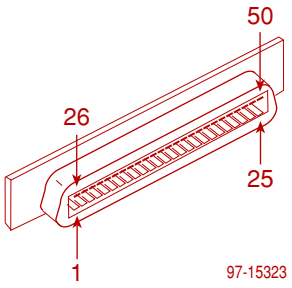
Model 8820 GranDSLAM Telco Connector Pinouts



The Telco 50-pin connectors on the back of the GranDSLAM (numbered 1–18) provide the 2-wire loop interface from each DSL port to either the POTS splitter shelf or, if the loop is not being shared with POTS, then to the Main Distribution Frame (MDF). The following table lists the pin assignments for each of these interfaces.

Port	Pins	Port	Pins	Port	Pins	Port	Pins	Port	Pins
1	1, 26	6	6, 31	11	11, 36	16	16, 41	21	21, 46
2	2, 27	7	7, 32	12	12, 37	17	17, 42	22	22, 47
3	3, 28	8	8, 33	13	13, 38	18	18, 43	23	23, 48
4	4, 29	9	9, 34	14	14, 39	19	19, 44	24	24, 49
5	5, 30	10	10, 35	15	15, 40	20	20, 45	25	Not used

Model 8620 GranDSLAM Telco Connector Pinouts



The three Telco 50-pin receptacles on the rear of the chassis (labeled for Slots 1, 2, 3) provide the 2-wire loop interface from each DSL port to either the POTS splitter card or, if the loop is not being shared with POTS, then to the Main Distribution Frame (MDF). The following table lists the pin assignments for each of these interfaces.

CONN # for Slots 1–3	CONN PINS (Tip, Ring)	CONN # for Slots 1–3	CONN PINS (Tip, Ring)
Port 1	1, 26	Port 14	14, 39
Port 2	2, 27	Port 15	15, 40
Port 3	3, 28	Port 16	16, 41
Port 4	4, 29	Port 17	17, 42
Port 5	5, 30	Port 18	18, 43
Port 6	6, 31	Port 19	19, 44
Port 7	7, 32	Port 20	20, 45
Port 8	8, 33	Port 21	21, 46
Port 9	9, 34	Port 22	22, 47
Port 10	10, 35	Port 23	23, 48
Port 11	11, 36	Port 24	24, 49
Port 12	12, 37	Port 25	Not used
Port 13	13, 38		

Technical Specifications

D

Table D-1. ATM Line Card Technical Specifications (1 of 2)

Specifications	Criteria*
Size	Length: 25.4 cm (10 inches) Height: 31.1 cm (12.3 inches) Width: 2.0 cm (0.8 inch)
Weight	
Model 8335	Approximately 0.6 kg (1.3 lbs.)
Model 8355	Approximately 0.9 kg (2.0 lbs.)
Model 8365	Approximately 0.6 kg (1.4 lbs.)
Model 8385	Approximately 0.6 kg (1.4 lbs.)
Approvals	
Safety Certifications	Refer to the equipment's label for approvals on product.
Power	The Hotwire ATM Line Card requires –48 VDC power input. The –48 VDC power is distributed through the Hotwire GranDSLAM backplane.
	Maximum Power Dissipation:
Model 8335-B1-000	25.5 watts
Model 8355-B1-000	37.9 watts
Model 8365-B1-000	41.1 watts
Model 8385-B1-000	45.0 watts
Physical Environment	
Operating temperature	0° to 50° C (32° to 122° F)
Storage temperature	–20° to 70° C (–4° to 158° F)
Relative humidity	5% to 85% (noncondensing)
Shock and vibration	Withstands normal shipping and handling.

* Technical specifications are subject to change without notice.

Table D-1. ATM Line Card Technical Specifications (2 of 2)

Specifications	Criteria*
Line Code	
Model 8335	2B1Q
Model 8355	ReachDSL
Model 8365	ANSI (ANSI T1.413-1998) G.dmt (ITU G.992.1) G.lite (ITU G.992.2)
Model 8385	G.SHDSL (ITU G.991.2)
DSL Line Rates	
Model 8335	144–2320 kbps
Model 8355	32–2176 kbps
Model 8365	Downstream: 32–8000 kbps for DMT and ANSI 64–3008 kbps for G.lite Upstream: 32–832 kbps for DMT and ANSI 32–512 kbps for G.lite
Model 8385	200–2320 kbps

* Technical specifications are subject to change without notice.

Index

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